OHQC Ontario Health Quality Council

Ontario

2006 First Yearly Report

The arrows on the front cover represent the Model for Improvement.* The cycle breaks down change into manageable steps that can be tested and measured.

Step 1: PLAN
Identify changes needed to make improvements and how to measure them.

Step 2: DO
Make the changes.

Step 3: CHECK
Review whether there's been improvement.

Step 4: ACT
Make more changes based on what you learned.

* The Model for Improvement was first published in 1992 by Langley, Nolan et al in The Improvement Guide: A Practical Approach to Enhancing Organisational Performance.

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Ontario Health Quality Council
2006 First Yearly Report

The Ontario Health Quality Council is an independent agency, created under Ontario's Commitment to the Future of Medicare Act. Our vision is to be "a trusted, independent voice dedicated to improving the health and health care of all Ontarians."

Summary and Conclusions

The quality of the publicly funded health system in Ontario is the responsibility of every Ontarian. It's your health and your health system — and to watch and report to you on how it's doing, the province appointed the Ontario Health Quality Council in September, 2005. Our mandate is to keep people in Ontario informed about the province's publicly funded health system. Another important part of our mandate is to support health-care workers and organizations as they strive to continuously improve the quality of the work they do.

This is our first annual report. We will release a report every year that looks at whether people can get the health services they need when they need them, if we have the right mix of workers in the system and enough of them, the health of the Ontario population overall and whether the health system is getting the results it's aiming for. Another part of our task is to help the publicly funded health system to keep improving its performance.

Thank you for taking time to look at this report. Informed involvement by Ontarians will help our health system to keep getting better and make it more accountable to us as well. What follows is a summary of the main points and conclusions of this year's report. You'll find more information in the complete report, backed up by detailed findings in the appendix.

What is a High-Performing Health-Care System?

We all want to know how well Ontario's health system is performing. For this report, we put the question this way: What are the attributes of a high-performing health system for Ontario? We answered that a high-performing health system is safe, effective, centred on the patient, accessible, efficient, equitable, integrated, has appropriate resources and is focused on population health.

Our next step was to consult research and many other sources to find reliable ways of measuring each attribute, "indicators" of quality that we could report to you. Our findings are reported in section 3, but because indicators must be a numerical measure of progress toward a goal, we get a limited view of health system performance this way. That tells us we need to start collecting more data in ways we can use to get valid measurements and comparisons of health care in Ontario. We also looked into five topics to report on how Ontario's health system could be improved and to find out what is being done in each of these areas. Our findings on these topics are reported in sections 4 to 8:

- Access to health care: understanding and improving it
- Getting health human resources right
- Spreading the use of proven knowledge and best practice
- Transforming health services delivery
- Using e-health to transform Ontario's health system

We used all of this information to assess each attribute. You can see the results in the **Quality Update** that follows.

Our conclusion? We believe investing in e-health—using information technology to manage health, arrange, deliver and account for care, and manage the health-care system—will do the most to improve all the attributes of a high-performing health system. E-health includes creating electronic health records for all patients, health information management systems and telehealth—the use of technology, including video-conferencing and digital transfer of data to deliver care at a distance. Better, more widespread and integrated use of technology will mean:

- Improved decisions about care
- More effective diagnosis and treatment
- Fewer medical errors
- Greater patient safety
- Increased efficiency
- Better access to services
- Better research on both care and how to run the system
- Information to support continuous quality improvement

Once you've looked at the **Quality Update** on the next few pages, you'll probably be wondering...

What Does It All Mean?

We've found Ontario's health system is performing well relative to other parts of Canada. The overall health of Ontarians is improving and we are making progress in getting the results we want from health care. But in some notable respects the system needs more work — in places, a lot more work. We're paying more attention to co-ordinating and integrating delivery of health services. That's good. But inadequate information is limiting our ability to continuously improve quality, monitor performance and report on it. That's not good. There is, however, intensifying focus on improving the health-information system. That too could be good.

Ontario invests heavily in research, but we're not getting enough value back because we don't do well enough in adopting the good ideas research produces. Similarly, there are brilliant practical examples all over the province of improving how patients get care that also need to be more widely adopted.

Does Ontario have a high-performing health system? Not in all its attributes, not everywhere, not yet. But the focus of health leaders on improving quality seems right and we seem to know what must be done to get there. Now it's up to all of us to help get it done.

The Quality Update on Ontario's Publicly Funded Health System

Attributes: Ontarians want their health system to be:	Evidence of improving performance	Evidence of need for improvement	Where we're going
Safe			
People should not be harmed by the care that is intended to help them.	Evidence shows a steady decrease in the number of patients who break a bone while in an acute care hospital or develop skin ulcers while in a chronic care hospital. (Section 3 and appendix 1)	The target number for preventable adverse events* should be zero. A cross-Canada study suggests there were likely about 32,000 preventable harmful events in Ontario hospitals in 2004. Unfortunately, we can't accurately identify and count these events because health-care information systems don't consistently track them. This makes it difficult to determine how to reduce or eliminate adverse events. (Section 3 and appendix 1) * Adverse event – an unintended injury or complication that results in disability, death or prolonged hospital stay that is caused by health care management rather than by the patient's underlying disease process.	Ontario's Patient Safety Task Force is to report in the spring of 2006 with possibilities for continuing improvements in care and safety which the quality council can monitor in the years to come. As patient safety measurement improves, we expect to see fewer medication errors and other harmful events. (Section 3 and appendix 1)
Effective			
The best science and evidence should be used to make sure the care we give is the best, most appropriate possible. Innovations should also be based on best evidence, whether they are new ways of co-ordinating care, preventing disease, delivering service or using technology.	The Ontario health system is increasingly effective in successfully providing care, particularly for patients with cancer or those in need of care after a heart attack. (Section 3 and appendix 2)	There are many effective guidelines for preventing long-term deterioration of health but they're not always followed. For example, only half of newly diagnosed diabetes patients receive recommended eye exams according to guidelines. (Section 3 and appendix 2) There are many other ways the system fails to benefit from health research. Barriers to using new knowledge include lack of support for them and too little funding and time. Better health information management systems could help. The council will review evidence of effective ways to turn knowledge into practice for a future report. (Section 6)	The Wait Time Strategy of the Ministry of Health and Long Term Care is promising. Its model for improving performance and management of waits for five key surgical and diagnostic procedures uses coaching teams to put standardized best practices, performance targets and public performance reporting in place. (Section 7)

The Quality Update on Ontario's Publicly Funded Health System

Attributes: Ontarians want their health system to be:	Evidence of improving performance	Evidence of need for improvement	Where we're going
Patient-Centred			
Patient-centred care respects the individuality, ethnicity, dignity, privacy and information needs of each patient and the patient's family. That respect should pervade the health system. Patients should be in control of their own care. Accountability to patients and their families should be high.	Surveys show a large majority of Ontarians believe our health system provides good or excellent care. (Section 3 and appendix 3) Some examples of services delivered in a patient-centred way appear in the report. (Section 4.5 and 4.6)	Fewer than half of hospital patients who are moved to long-term care go to their first choice of home. People in the community who must move into long-term care don't do any better: almost 40 per cent of them don't get to go to their first choice of home. (Section 3 and appendix 3)	The newly-formed Local Health Integration Networks will be responsible for planning, integrating and funding local health services in 14 areas of the province. Working with both community members and local health providers to determine health-service priorities, they are to ensure decisions are made in the interests of patient care. Family Health Teams are intended to give patients co-ordinated access to a number of primary health care services from a variety of team members, including their family doctor. (Section 7)
Accessible			
Patients in need should get appropriate care in the most appropriate setting. We should keep trying to reduce waits and delays.	The report gives a number of Ontario-based examples of overcoming barriers to access, showing that with the right tools, information and incentives, care teams across the province are getting the job done. (Section 4)	According to the Canadian Community Health Survey, close to 1 million Ontarians do not have access to a regular family doctor. This may keep them from getting preventive care, such as screening and immunizations, and make it more difficult see specialists. (Section 3 and appendix 4) Access to a range of health services continues to be a problem, in particular for the poor, immigrants, rural residents and aboriginals. (Section 4)	Family Health Teams are to provide better access to primary care. Their multidisciplinary teams are intended to enable health professionals to provide more appropriate care for a greater number of people. The Wait Time Strategy is to reduce waits and increase access to cancer surgery, cardiac procedures, cataract surgery, hip and knee replacements and MRI and CT exams. Local Health Integration Networks are intended to assess and address access problems in their communities. (Section 7)
Efficient			
There should be continuing efforts to reduce waste, including waste of supplies, equipment, time, ideas, intellectual property and health information.	Ontario hospitals have shorter acute-care stays, use more day surgery and have lower costs per case than hospitals in most other provinces. (Section 3 and appendix 5) Ontario has produced effective, research-based best practices that use resources more wisely, such as the Ottawa Ankle Rules. (Section 4.6)	Almost 10 per cent of beds in Ontario acute-care hospitals hold patients waiting to move to other services. This is inefficient use of our most expensive health-care service. (Section 3 and appendix 5) There is some evidence resources are wasted due to lack of knowledge or use of proven best practices. (Sections 4.6 and 6.1)	Accountability agreements between Local Health Integration Networks and health-care providers are intended to result in more responsible use of health-care resources. (Section 7)

The Quality Update on Ontario's Publicly Funded Health System

Attributes: Ontarians want their health system to be:	Evidence of improving performance	Evidence of need for improvement	Where we're going
Equitable			
There should be continuing efforts to reduce disparities in the health of those groups who may be disadvantaged by social or economic status, age, gender, ethnicity, geography or language.	The report describes solutions for reducing some of the disparities in Ontario, such as using telehealth to reduce geographic isolation and access for first nations, or developing programs aimed at multilingual and multicultural communities. (Section 4.5)	The rate of death after stroke is more than 30 per cent higher for people living in the Kingston area than for people in York Region, although the Ontario Stroke Strategy is working to standardize care. There are over 50 per cent more non-specialist doctors per person in Toronto than in the high-growth regions of York and Durham. (Section 3 and appendix 6) Research suggests some groups, in particular the poor, immigrants, rural residents and aboriginals face greater difficulties in getting care. (Section 4.2)	Performance data is to be reported for each Local Health Integration Network. This will make it possible to monitor equity across Ontario's geographic regions. (Section 7)
Integrated			
The health system should set clear quality objectives for all health-service providers. The objectives should be aligned at the provincial, regional and local levels and each service-delivery organization should have to track them for accountability.		Patients can't always move easily and quickly when the type of care they need changes. Many patients must wait in hospital until other services such as home care, long-term care, or rehabilitation become available. (Section 3 and appendix 7)	Local Health Integration Networks are to be responsible for planning, integrating and funding local health services in 14 different areas of Ontario. They will oversee and co-ordinate health services delivered by hospitals, long-term care facilities, community health centres, community support services and mental health agencies. Eventually they will provide funding and resources to local health providers. (Section 7)
Appropriately Resourced			
The health system should plan for appropriately trained human resources; provide a safe and satisfying environment for their work and provide sufficient facilities, instruments and technology to support productive and effective patient care.	Compared to those in most other provinces, Ontario's health-care workers lose relatively few days of work to illness or disability. (Section 3 and appendix 8) Capacity to train physicians, nurses, midwives, and pharmacists, and to assess internationally educated health professionals has been expanded. The government has committed to further expansions through to 2009/10. (Section 5)	Ontario's health-care workers are 50 per cent more likely to miss work for illness or disability than workers in other sectors. (Section 3 and appendix 8) The number of health-care workers in Ontario has increased, but the rate does not match increased demand for health-care services from a growing and aging population. (Section 3 and 5 and appendix 8) Our aging population means we face both increased demand for health services, and a significant number of retirements in health professions, a threat to the capacity of the Ontario health system. Geographic distribution also remains a problem. (Section 5)	A senior official responsible for human resources in health was appointed to a two-year assignment starting in September 2005. The official reports to both the Ministry of Health and the Ministry of Training, Colleges and Universities. Progress will be reported in the Ontario Health Quality Council's 2007 report. (Section 5)

The Quality Update on Ontario's Publicly Funded Health System

Attributes: Ontarians want their health system to be:	Evidence of improving performance	Evidence of need for improvement	Where we're going
Focused on Population Health			
There should be a determined effort to continuously improve the overall health of the population of Ontario.	Life expectancy for Ontarians is increasing. Population-health successes include reduced smoking rates, reduced impaired driving and more use of seat belts and bike helmets for children. Data on the province's Universal Influenza Immunization shows that seniors, who have the greatest risk of serious complications due to flu, are getting vaccinated. (Section 3 and appendix 9)	There are areas where population health trends are not as promising. Notably, more young males are obese. Recent U.S. research raised the possibility that the impact of obesity may be so great it could reverse the trend to living longer. Sexually transmitted diseases are on the rise. (Section 3 and appendix 9)	Establishing a Ministry of Health Promotion is intended to increase focus and action on improving the overall health of the population. (Appendix 9)
To improve all attributes of a high-performing health system for Ontario —			
We Need E-health			
E-health is a model of health care centred on the consumer, where stakeholders collaborate by using information technology to manage health, arrange, deliver and account for care, and manage the health-care system.	Regional and provincial projects underway include: the Ontario Laboratory Information System, public health information solutions, emergency room access to medication profiles, the Wait Time Information System, a regional diagnostic imaging system in Thames Valley and a Child Health Electronic Patient Record. Most hospital corporations in Ontario have strategic plans for electronic patient records, aimed at improving their clinical information systems. Telehealth is relatively advanced in Ontario, and its governance and funding are being strengthened. (Section 8)	Early implementation of electronic health records is the single most important step toward a competent health-information management environment. Without it, Ontario cannot fully support continuous quality improvement. Ontario has not yet brought sufficient focus and urgency to its e-health efforts. The absence of a clear plan, appropriate governance, and requisite funding are concerns. Introducing electronic health records could be sped up substantially with a stronger mandate for Canada Health Infoway, the national agency created by Canada's First Ministers when they agreed in September 2000 "to work together to strengthen a Canada-wide health infostructure to improve quality, access and timeliness of health care for Canadians." (Section 8)	Ontario is participating in the national implementation of e-health solutions including electronic health records and recently ordered an operational review of its Smart Systems for Health Agency. Ontario hospitals are increasing their readiness to use electronic records and some large teaching hospitals are ready now. The information management component of the Ministry of Health and Long Term Care Health Results Team is focusing on producing better data, supporting accountability and quality improvement through performance measurement, and supporting evidence-based decision-making. (Section 8)

1.0 Introduction

The Ontario Health Quality Council is an independent agency created under the Commitment to the Future of Medicare Act with a mandate to:

- Inform Ontarians on the status of our publicly funded health system, including whether people can get the health services they need when they need them, whether we have the right mix of workers in the system and enough of them, the health of the Ontario population overall and whether the health system is getting the results it's aiming for
- Support efforts to keep improving the quality of Ontario's health system

This is the quality council's first report since being appointed in September 2005. Reporting on all of the aspects of a very complex system in one report would be impossible, but over the next two years, we will work toward a more comprehensive look at health and health care in the province. During that time, we expect the province's health-information systems to improve. That will make it easier to measure and report on health quality and to set policy goals for it. Each year, we will also update information from previous reports so Ontarians get a clear sense of whether progress is being made.

Our vision is to be —

A trusted, independent voice dedicated to improving the health and health care of all Ontarians.

2.0 What Ontarians Expect: The Attributes of a High-Performing Health System

Most Ontarians know what they want and expect from their publicly funded health system. The quality council consulted expert opinion for the best way to describe these expectations. We think Ontarians want their health system to be:

- **SAFE** — People should not be harmed by the care that is intended to help them.
- **EFFECTIVE** — The best science and evidence should be used to make sure the care we give is the best, most appropriate possible. Innovations should also be based on best evidence, whether they are new ways of co-ordinating care, preventing disease, delivering service or using technology.
- **PATIENT-CENTRED** — Patient-centred care respects the individuality, ethnicity, dignity, privacy and information needs of each patient and the patient's family. That respect should pervade the health system. Patients should be in control of their own care. Accountability to patients and their families should be high.
- **ACCESSIBLE** — Patients in need should get appropriate care in the most appropriate setting. We should keep trying to reduce waits and delays.
- **EFFICIENT** — There should be continuing efforts to reduce waste, including waste of supplies, equipment, time, ideas, intellectual property and health information.
- **EQUITABLE** — There should be continuing efforts to reduce disparities in the health of those groups who may be disadvantaged by social or economic status, age, gender, ethnicity, geography or language.
- **INTEGRATED** — The health system should set clear quality objectives for all health-service providers. The objectives should be aligned at the provincial, regional and local levels and each service-delivery organization should have to track them for accountability.
- **APPROPRIATELY RESOURCED** — The health system should plan for appropriately trained human resources, provide a safe and satisfying environment for their work, and provide sufficient facilities, instruments and technology to support productive and effective patient care.
- **FOCUSED ON POPULATION HEALTH** — There should be a determined effort to continuously improve the overall health of the population of Ontario.

These attributes will be the basis for reporting to you each year on the performance of Ontario's health system. For each there will be one or more "performance indicators" (standard measures of quality) we will use to assess whether expectations are being met or progress is being made from year to year.

To be sure quality is improving, it would be best to have goals for each attribute; then all Ontarians could see how well the health system is doing, compared to how we would like it to be. Setting those goals is an important role for our province's Ministry of Health and Long-Term Care.

We would like Ontarians to think about these characteristics. Do they capture what you believe are the most important attributes of our health care system?

3.0 Indicators of Performance

A Good Indicator:

- Can be measured numerically
- Allows measurements to be made consistently and accurately over time
- Is accepted as a relevant way to measure progress in achieving a goal
- Works best with established targets and measurements tracked over time, to show whether expectations are met and improvements are made

3.1 How can we assess how well our health system is performing?

Indicators, or measures of quality, are essential for reporting on performance. The best indicators are those that reflect our expectations. In the previous section we listed the attributes that we believe Ontarians want to see in their health system. This section gives examples of indicators we have now, explains why they are inadequate for the job and explains why we lack data for many measurements of health we would like to make. The biggest problem is lack of consistent, high-quality data. Health systems around the world are struggling with this problem of establishing valid health-system performance indicators.[1]

3.2 What can we measure in our health system right now?

The quality council has examined indicators from many sources to find measures for each of the nine attributes. The inaugural "Ontario Health System Scorecard"[2] developed by the Health Results Team for Information Management in Ontario's Ministry of Health and Long-Term Care was a key source. Other groups, such as Cancer Care Ontario and the Cardiac Care Network, have also developed indicators and published performance results.[3,4]

The quality council's initial set of indicators is shown in Table 1. These are not necessarily the indicators that should always be used, but because of the serious limitations on our ability to measure performance described later in the section, they are our starting point.

Table 1 – Indicators to Measure Attributes

Attribute of a High-Performing Health System	Performance Indicators We Can Measure Now	What We Would Like to Measure
Safe	• Number of patients who break bones following admission to hospital • Percent of chronic hospital patients with new skin ulcers	• Deaths or injuries from health care errors that could have been avoided
Effective	• Percent of newly diagnosed diabetes patients with an eye exam within a year of diagnosis • 30-day survival rate after heart attack • Five-year survival rates for cancer	• Percent of patients in all health care settings receiving care according to accepted clinical guidelines
Patient-Centred	• Percent of population rating health services quality as good or excellent • Percent of long-term care candidates placed in their first choice of home	• Percent of patients who feel their doctors and health-care providers explain things in a way they understand • Percent of patients who feel their doctors and health care providers show respect for their preferences
Accessible	• Wait times for joint replacement • Percent of population with a regular doctor	• Are people in rural and remote areas getting more equitable access to necessary care? • Do patients have access to speciality care when they need it? Advice after hours?
Efficient	• Provincial government health expenditures per capita • Percent of alternate level of care days in Ontario hospitals • Hospitalization rate for ambulatory care sensitive conditions	• Does the Ontario health system provide a wider range of service at a lower cost than the health systems in other provinces?
Equitable	• In-hospital death following stroke by region • Primary care physicians per 10,000 population by region	• Do low income Ontarians get the same quality of health care as the wealthy? • Does satisfaction with health care vary by ethnic or cultural group?
Integrated	• Percent of alternate level of care days in Ontario hospitals	• How well are health-care providers in Ontario working together to co-ordinate care for patients?
Appropriately Resourced	• Change in health human- resource supply • Average days of work lost by health-care workers	• Are we creating new roles for health- care-providers to meet the needs of a growing and changing population? • Are we dealing with shortages of workers in certain types of care, including public health, mental health, home care, long-term care and for underserved communities?
Focused on Population- Health	• Use of tobacco • Infant mortality • Life expectancy at age 65	• How well are we reducing risk factors for illness and disability among Ontarians? • Do broader government policies support efforts to improve the overall health of the population?

1 Healthy Canadians. A Federal Report on Comparable Health Indicators 2002, Health Canada, 2002; World Health Organization, "The World Health Report 2000 – Health systems: Improving performance", June 2000; NHPC 2000, "Measuring Performance in the Australian Health System Towards a National Performance Assessment Framework." Brisbane: Queensland Health; United Kingdom Department of Health 1999, "Performance Assessment Framework," London; Ontario Ministry of Health and Long-Term Care, "The Ontario Health System Scorecard," January 2006

2 Ontario Ministry of Health and Long-Term Care, "The Ontario Health System Scorecard," January 2006

3 Cancer Care Ontario, "Cancer System Quality Index," 2005, Toronto

4 Cardiac Care Network of Ontario, "Cardiac Procedure Statistics," February 2006, Toronto

3.3 Limitations on what we can measure

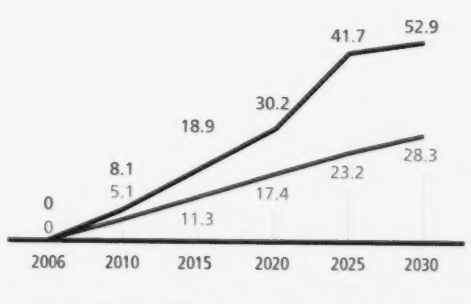
Indicators that are relevant, valid and readily available are hard to come by; often the information simply isn't collected, or is not consistently collected over time and in different settings, which means we can't measure whether or not performance has improved. In other cases, we can't be sure data are really comprehensive, comparable or timely. We know, for example, Ontario's overall health-care spending per person is slightly above the national average, but we don't know whether that's because Ontario's health-care system is less efficient, or because it provides more services. Except for hospital care, inter-provincial comparisons of health care are difficult to do (see appendix 5) because the information is usually extracted from administrative records, rather than based on data gathered as services are provided. Very little information is routinely collected on diagnoses and treatments.

Many indicators apply only to acute-care hospitals[5], because they have extensive (and expensive) infrastructure to collect and report administrative data. Other providers of health care (from smaller institutions to individual physicians) don't have the equipment or ability to match hospital reporting. Ultimately, we will need health-care performance indicators covering all sectors of health care on a real-time basis, produced as by-products of providing care.

3.4 Need for more effective indicators and reporting

The performance indicators we have today are not good enough for a job that will become more difficult as Ontario's growing and aging population demands more health services. The following chart shows the projected increase in Ontario's population to 2030 and the projected increase in hospital use in that time. The projected increase in hospital use (assuming rates of reliance on hospitals stay the same), will greatly outstrip population growth. By encouraging people to live healthy lives and supporting programs to prevent illness, as well as improving primary care and care for chronically ill patients, we can reduce demand on hospitals; but we will still need relevant, valid and reliable indicators based on timely data to ensure we have the high-performing health system Ontario will need.

CHANGE IN ONTARIO POPULATION AND ACUTE CARE HOSPITAL SEPARATIONS
(projected % increase)



Source: CIHI Discharge Abstract Database and Ontario Ministry of Finance Population Projections

Good data and performance-measurement systems will let all of us — including policy makers, health professionals, health-service managers, patients and taxpayers — evaluate and improve the performance of our health-care system.

Ontario also needs information technology capable of supporting health-information management. Electronic health records, which would record the data used to make treatment decisions, could supply anonymous, real-time data that would greatly improve our ability to measure the performance of the health system. Good health information should be an automatic by-product of providing care, rather than the product of an expensive, added-on data-collection process. This topic is examined further in section 8.0.

3.5 Conclusions

We can't yet say Ontario health care exhibits all the attributes of a high-performing health system. There are areas where we are encouraged and others where there are opportunities for improvement.

The appendix to this report includes detailed discussion of each of the indicators listed in Table 1, which we used to draw the conclusions shown in Table 2 about the performance of the Ontario health system.

In the remaining chapters of this report, we hope to give you a better understanding of some of the key issues affecting the quality of Ontario's health care system, namely:

- Access to health care: understanding and improving it
- Getting health human resources right
- Spreading the use of proven knowledge and best practice
- Transforming health services delivery
- Using e-health to transform Ontario's health delivery

5 "Hospital Report 2005 - A joint initiative of the Ontario Hospital Association and the Government of Ontario", University of Toronto, Canadian Institute for Health Information, 2005.

Table 2 – Assessment of Ontario's Health System

Attributes: Ontarians Want Their Health System To Be:	Evidence of Improving Performance	Evidence of Need for Improvement
Safe – People should not be harmed by the care that is intended to help them.	Evidence shows a steady decrease in the number of patients who break a bone while in an acute care hospital or develop skin ulcers while in a chronic care hospital. (See appendix 1)	The target number for preventable adverse events[6] should be zero. A cross-Canada study suggests there were likely about 32,000 preventable harmful events in Ontario hospitals in 2004. Unfortunately, we can't accurately identify and count these events because health-care information systems don't consistently track them. This makes it difficult to determine how to reduce or eliminate adverse events. (See appendix 1)
Effective – The best science and evidence should be used to make sure the care we give is the best, most appropriate possible. Innovations should also be based on best evidence, whether they are new ways of co-ordinating care, preventing disease, delivering service or using technology.	The Ontario health system is increasingly effective in successfully providing care, particularly for patients with cancer or those in need of care after a heart attack. (See appendix 2)	There are many effective guidelines for preventing long-term deterioration of health but they're not always followed. For example, only half of newly diagnosed diabetes patients receive recommended eye exams according to guidelines. (See appendix 2)
Patient-Centred – Patient-centred care respects the individuality, ethnicity, dignity, privacy and information needs of each patient and the patient's family. That respect should pervade the health system. Patients should be in control of their c[illegible] care. Accountability to p[illegible]ents and their families should be high.	Surveys show a large majority of Ontarians believe our health system provides good or excellent care. (See appendix 3)	Fewer than half of hospital patients who are moved to long-term care go to their first choice of home. People in the community who must move into long-term care don't do any better: almost 40 per cent of them don't get to go to their first choice of home. (See appendix 3)
Accessible – Patients in need should get appropriate care in the most appropriate setting. We should keep trying to reduce waits and delays.		According to the Canadian Community Health Survey, close to 1 million Ontarians do not have access to a regular family doctor. This may keep them from getting preventive care, such as screening and immunizations, and make it more difficult see specialists. (See appendix 4)

Attributes: Ontarians Want Their Health System To Be:	Evidence of Improving Performance	Evidence of Need for Improvement
Efficient – There should be continuing efforts to reduce waste, including waste of supplies, equipment, time, ideas, intellectual property and health information.	Ontario hospitals have shorter acute-care stays, use more day surgery and have lower costs per case than hospitals in most other provinces. (See appendix 5)	Almost 10 per cent of beds in Ontario acute-care hospitals hold patients waiting to move to other services. This is inefficient use of our most expensive health-care service. (See appendix 5)
Equitable – There should be continuing efforts to reduce disparities in the health of those groups who may be disadvantaged by social or economic status, age, gender, ethnicity, geography or language.		The rate of death after stroke is more than 30 per cent higher for people living in the Kingston area than for people in York Region, although the Ontario Stroke Strategy is working to standardize care. There are over 50 per cent more non-specialist doctors per person in Toronto than in the high-growth regions of York and Durham. (See appendix 6)
Integrated – The health system should set clear quality objectives for all health-service providers. The objectives should be aligned at the provincial, regional and local levels and each service-delivery organization should have to track them for accountability.		Patients can't always move easily and quickly when the type of care they need changes. Many patients must wait in hospital until other services such as home care, long-term care, or rehabilitation become available. (See appendix 7)
Appropriately Resourced – The health system should plan for appropriately trained human resources; provide a safe and satisfying environment for their work and provide sufficient facilities, instruments and technology to support productive and effective patient care.	Compared to those in most other provinces, Ontario's health-care workers lose relatively few days of work to illness or disability. (See appendix 8)	Ontario's health-care workers are 50 per cent more likely to miss work for illness or disability than workers in other sectors. The number of health-care workers in Ontario has increased, but the rate does not match increased demand for health-care services from a growing and aging population. (See appendix 8)
Focused on Population Health – There should be a determined effort to continuously improve the overall health of the population of Ontario.	Life expectancy for Ontarians is increasing. Population-health successes include reduced smoking rates, reduced impaired driving and more use of seat belts and bike helmets for children. Data on the province's Universal Influenza Immunization shows that seniors, who have the greatest risk of serious complications due to flu, are getting vaccinated. (See appendix 9)	There are areas where population health trends are not as promising. Notably, more young males are obese. Recent U.S. research raised the possibility that the impact of obesity may be so great it could reverse the trend to living longer. Sexually transmitted diseases are on the rise. (See appendix 9)

6 Adverse Event — An unintended injury or complication that results in disability at the time of discharge, death or prolonged hospital stay and that is caused by health care management rather than by the patient's underlying disease process.

4.0 Access to Health Care: Understanding and Improving It

ACCESSIBLE: Patients in need should get appropriate care in the most appropriate setting. We should keep trying to reduce waits and delays.

Fifty-four-year-old Vicki Fountain made the newspaper in January 2006, although it was not the kind of appearance she wanted[7]. Ms. Fountain moved back to her birthplace in the Kingston area three years ago because her husband George had a heart attack and needed closer medical follow up than he could get in Williams Lake, B.C. However, Ms. Fountain had trouble getting health care for herself. She found a family doctor, but the physician closed her office in 2004 and Ms. Fountain hasn't been able to find a regular family doctor since.

Ms. Fountain suffers from a variety of ailments including peripheral vascular disease. With her high cholesterol and family medical history, that means she is at high risk of the arteries in her legs becoming blocked. She often goes to emergency departments, but she can't get the follow up and preventive care she needs. It seems a cruel joke to Ms. Fountain that she will get immediate care if one of her leg arteries gets blocked but she cannot get care to prevent that happening. At the same time, many of the services she needs for her chronic disease might be provided as well or better by a nurse practitioner, pharmacist, or dietitian. The ideal situation would be for her to have access to a multi-disciplinary primary health-care team.

4.1 Access is about more than just waiting lists

Ms. Fountain's predicament illustrates one aspect of the frustration that trying to get access to health care in Ontario can cause. Those with true emergencies can get care immediately but patients with other health needs too frequently have to wait for a crisis to get care. People may not find the care they need nor be aware of services that could help them be healthier; sometimes those services are in great demand and people have long waits for therapy or treatment that would make a real difference to their suffering. There is, however, an even more disturbing reality. Some Ontarians don't get the care they need because of who they are. Aboriginal Ontarians have, on average, more health problems, but have less access to care and many face a second barrier as well, because people who live in rural and remote areas have trouble getting care too. However, plenty of people who live in cities, including immigrants, people who don't speak English and low-income families have been shown to get less care than higher-income groups. The media tend to describe access to health care only in terms of waits for surgery or cancer treatment, but there are other barriers to care, and all of them are hard to bear — and potentially damaging — for Ontarians.

4.2 Special populations, special access problems

Despite over 30 years of universal coverage for physician and hospital services in Ontario, access to those services is not equally available to all who need them. In Ontario, heart-attack victims who are wealthier and better educated are more likely to receive specialized investigations, rehabilitation, and specialist follow up.[8] Wealthier Ontarians are also more likely to get rehabilitation after a stroke[9], get preventive care such as screening tests for colorectal cancer[10] and have more hip and knee replacements, cancer surgery (in total) and MRI scans, even though lower-income Ontarians tend to be sicker than wealthier ones.[11] Higher-income Ontarians get to hospital faster when they have chest pain.[12] Better educated Ontarians are more likely to get care for depression.[13]

There are many examples of unequal access to care. Women receive more of some types of health care than men, but less of others. For example, Ontario women are 50 percent more likely to get a prescription for a tranquilizer.[14] On the other hand, women with heart disease are less likely to receive diagnostic tests and surgery.[15]

Rural Ontario residents are less likely to get a number of services including appropriate follow-up care for diabetes[16] or appointments with a dermatologist for acne.[17] People in Northern Ontario tend to have more illnesses and higher rates of services including hip and knee replacements, cataract surgery, heart procedures, cancer surgery and MRI scans; despite all that care, they live shorter lives.[18]

Immigrants and non-English speakers are less likely to get a variety of services including tonsillectomies and insertion of ear tubes and a number of Canadian publications note access barriers for non-English speaking ethnic groups and visible minorities.[19,20,21,22] There are few Canadian data on health care access by race or ethnic group, but U.S. data on access by race reveal a number of disparities.[23] Some research from Canada and elsewhere indicates that gay, lesbian, and transgendered Ontarians face barriers to accessing health care services.[24,25]

7. Lukits A. A Health-Care Quest. Kingston Whig Standard. January 28, 2006. Supplemented by interviews with Ms. Fountain February 6, 2006.
8. Alter DA, Iron K, Austin PC, et al. Socioeconomic status, service patterns, and perceptions of care among survivors of acute myocardial infarction in Canada. JAMA 2004;291:1100-1107.
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11. Tu JV, Pinfold SP, McColgan P, et al. "Access to Health Services in Ontario." Institute of Clinical Evaluative Sciences. Found at: http://www.ices.on.ca/webpage.cfm?site_id=1&org_id=67&morg_id=0&grec_id=0&item_id=2862&type=atlas Accessed: April 2005.
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13. Rhodes A, Jaakkimainen L, Bondy S, et al. Depression and mental health visits to physicians: a prospective, records-based study. Soc Sci Med 2006;62:828-834.
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16. Woodward G, van Walraven C, Hux JE. Utilization and outcomes of HbA1c testing: a population-based study. CMAJ 2006;174:327-329.
17. Haider A, Mamdani M, Shaw J, et al. Socioeconomic status influences care of patients with acne in Ontario, Canada. J Am Acad Dermatol 2006;54:331-335.
18. Ward M. "An Overview of Health Status in Northern Ontario." North Health Information Partnership. Found at: http://www.healthinformation.on.ca/Reports/Northern%20HIU/2004/Northern%20Health%20Status.pdf Accessed March 2, 2006.
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20. Kafele K. "Racial Discrimination and Mental Health: Racialized and Aboriginal Communities." 2002. Found at: http://www.ohrc.on.ca/english/consultations/race-policy-dialogue-paper-kk.shtml Accessed February 26, 2006.
21. Croxford R, Friedberg J, Coyte P. Socio-economic status and surgery in children: myringotomies and tonsillectomies in Ontario, Canada, 1996-2000. Acta Paediatr. 2004;93:1248-1250.
22. Bowen S. Language Barriers in Access to Health Care. Health Canada Ottawa; November 2001. Found at: http://www.hc-sc.gc.ca/hcs-sss/pubs/care-soins/2001-lang-access/index_e.html. Accessed January 10, 2005.
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24. Brotman S, Ryan B, Jalbert Y, et al. The impact of coming out on health and health care access: the experiences of gay, lesbian, bisexual, and two spirit people. J Health Soc Policy 2002;15:1-29.
25. Bowen DJ, Bradford JB, Powers D, et al. Comparing women of differing sexual orientations using population-based sampling. Women Health 2004;40:19-34.

There are several reasons these groups face barriers to getting care. A report for the Ontario Human Rights Commission identified five:

- They tend to have less income and sometimes less education than the general population
- They are under-represented in the health professions
- Miscommunication
- The delivery of culturally insensitive care
- Clinical decision making

Ontario does a good job of ensuring equitable access to the "front end" of health care, i.e., family doctors and emergency departments. A recent study of 21 wealthy countries found that family-physician services in Canada seem to be provided according to need: lower-income Canadians, who as a group are less healthy, get more primary care than more well-to-do Canadians.[26] Higher-income Canadians, however, are more likely to see specialists. We need more of our specialized services to be as accessible as primary health care.

It is important to note, however, that the same factors that make health care harder to access — such as poverty, lack of education, being isolated in society — also make people less healthy, so even with equitable access to health care services, people who are poor and less educated tend to have poorer health. A high-performing health care system could eliminate some inequalities but not all.

Some health-care services try to overcome the social factors that determine health: in Toronto's Regent Park (the oldest and largest public housing project in Canada, where incomes are less than half the Canadian average) the Regent Park Community Health Centre identified education as the major factor in the future health of children in their area. In 2001, it launched Pathways to Education, which has cut absenteeism by over 50 percent and reduced the percentage of academically at-risk students from 40 to 14 percent, while reducing the dropout rate by at least two-thirds. Children in the program can expect better economic and social futures — and better health as well.

4.3 Making care available to those who face access barriers

The challenges in getting access to care can loom large, but the good news is how well organizations across the province are doing as they work to make health care available to people who face some of these barriers. Sometimes it is distance that must be overcome, sometimes a disability, sometimes language, cultural or historical factors. At every level, groups and individuals are finding ways to overcome those problems. Mental-health care was a tremendous challenge for the deaf and hearing impaired before the Canadian Hearing Society in Ontario developed Connect, a specialized counselling service that now has 34 staff in 26 places across the province.

Ottawa's Somerset West Community Health Centre offers minority-language outreach nursing. Huy Truong, one of the Vietnamese outreach nurses, described how a diabetes-education course in Vietnamese led one elderly woman to make dramatic changes in her life. Now her blood sugars are normal and she no longer needs a cane — but she does go swimming and takes Tai Chi. This is just one of many programs around that province that reach out to people isolated by language or culture. Several hundred low-German-speaking Mennonites have immigrated to Canada from Latin America over the last 15 years and settled near Woolwich in Southern Ontario. There is now a program, Gesundheit Fur Kinder to assist women with their pregnancies and infant health, and offer information on healthy diets and child development. Preventive care, a breast-feeding consultant, a nurse practitioner and a dietitian are available. Because the program suits the needs of the women so well, it is very popular and actually over subscribed.

The most essential service that can be offered to immigrants is translation. Miscommunication, caused by language and cultural differences, is common when immigrants see a health-care provider. It can lead to inaccurate diagnoses and inappropriate treatment, as well as wasting health-system resources. Toronto's Access Alliance Multicultural Community Health Centre provides interpretation services in 60 languages for its patients and health and social service providers throughout Toronto. Similar services are available outside the city, too; the Thunder Bay Multicultural Association offers services in over 40 languages.

Ontarians who live in isolated rural and northern communities face expensive travel for care. Often, they, and family who accompany them, lose income by missing work as well. The Northern Ontario Remote Telecommunication Health (NORTH) Network is one of the biggest telehealth providers in the world. The technology — usually a video-conferencing set up and equipment for transferring various types of health data — is in 111 communities and provides 1,800 consultations per month without patients having to travel long distances.

Aboriginal people often face many of the common barriers to care at once. Many live in rural or remote communities, others are urban-dwelling but isolated by culture. Too many share a lack of education and poverty. Ontario's Aboriginal Healing and Wellness Strategy has greatly expanded access to care for first nations. The Mamaweswen North Shore Tribal Council now runs eight health centres. Gloria Daybutch, the executive director of health services, relates a story of an older woman who was a survivor of a residential school. She had not had a physical examination in years but as she got to know the nurse practitioner in the centre she confided she was having some vaginal bleeding. After further examination and referral she was found to have uterine cancer — but it was early enough for cure and she is still alive and contributing to her community five years later.

Experiments in Toronto and Ottawa have helped bring health care to another isolated group — homeless alcoholics. First, in 1996, Toronto's Seaton House followed by Ottawa's Inner City Health Project (a consortium of shelters), began to give alcohol (one drink an hour) to their homeless alcoholic clients, to make health programs more acceptable to them. The principle behind this "harm reduction" approach is that health care and shelter give benefits that outweigh the harm of the alcohol. Wendy Muckle, executive director of Ottawa's project, remembers a client who, in the month before entering the program, made thirty visits to emergency departments and multiple visits to community health centres. Once he was allowed to drink in the shelter and receive health care there, he stopped using other services. A preliminary evaluation reflected the impact of the program.[27] On average for participants in the program, emergency department visits decreased by 40 percent, police contacts by 50 percent and alcohol consumption plummeted by 81 percent.

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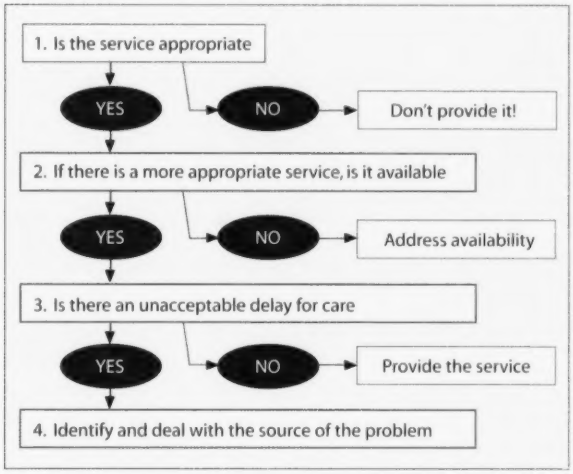
27. Podymow T, Turnbull J, Coyle D, et al. Shelter-based managed alcohol administration to chronically homeless people addicted to alcohol. CMAJ2006;174:45-49.

4.4 Understanding and improving access to health services

News of people having difficulty getting timely access to health services typically triggers a call for more health funding but that's not always the best answer. We need to think more about whether care is appropriate — that is, whether it truly benefits patients. The questions to ask are:



4.5 Identifying and eliminating inappropriate services

While many health services don't help patients, others actually do harm. Dr. Charles Wright and colleagues at the University of British Columbia looked at six elective surgical procedures and found that 94 percent of patients who had hip replacements were better after surgery, 4 percent were had no change in their symptoms, and 2 percent were worse off. But only 70 percent of cataract-surgery patients improved; 26 percent had worse vision after the procedure.[28] Apparently, most hip-replacement patients were getting appropriate care but many cataract patients were not. There is no routine evaluation of this type in Ontario so we don't know the situation here but we do know nobody should risk the side effects of health care that doesn't work. Even innocuous blood tests can be inaccurate and lead to more dangerous tests or even surgery. It's pretty clear that care that won't improve health shouldn't be provided.

4.6 Reducing demand through more appropriate services

This paper began by pointing out that we all have responsibility for the health-care system in Ontario. One way to act on that is to take responsibility for our own health. Healthy people should use the system less — protecting themselves from inappropriate care and freeing up health services for those who need them. But most of us need support to remain healthy and many people certainly need care that will keep the illnesses they do have from getting worse. Plenty of programs are being developed that back up people's efforts to live healthy lives or keep people with chronic health issues as well as possible.

Supporting patients in prevention and self-care

Programs that support patients in managing their own chronic health problems are becoming more common; patients are increasingly being taught to monitor symptoms and adjust their behaviour or medication in response. Research shows these patients do better and reduce costs for arthritis, asthma, and possibly other conditions.[29]

The Arthritis Society of Canada developed "Getting a Grip on Arthritis" to increase the ability of patients and providers to manage osteo and rheumatoid arthritis. A preliminary evaluation showed providers had increased capacity to manage arthritis, and patients had greater information and knowledge about their condition.[30]

The Ojibway-Cree of northwestern Ontario were introduced to the idea of participating in their own diabetes care more than 10 years ago by the Sandy Lake First Nation. Exercise is important in preventing and managing type 2 diabetes. The community developed six kilometres of hiking trails, after-school recreation programs for children, broom ball leagues for women and road hockey for everyone as well as a community nutrition program. Diabetes remains a major health concern but the children are eating better and there are other signs of a turn around.[31] Rod Fiddler, coordinator of the diabetes project, described one older woman with diabetes who joined the walking club with her two daughters. All three have lost considerable weight and the mother's diabetes is now much easier to control.

Keeping people out of hospitals

Many of the services we give patients in hospital could be provided in the community — usually with less inconvenience for patients and lower cost for the system — but people continue to go to hospital because equivalent care is unavailable. In one test project, the London Middlesex Community Care Access Centre created an Advanced Home Care Team, connecting the patient's family doctor, two nurse practitioners, and other community health services. In one case, a 72-year-old woman with congestive heart failure received oxygen and intravenous treatment at home. An evaluation estimated the program cost $400 to $1,900 less per patient than treatment in hospital.[32]

Dialysis, which cleans impurities from the blood of people with kidney failure, has been saving lives for more than 60 years, normally through three sessions per week at a dialysis centre. Toronto's Dr. Robert Uldall pioneered the use of longer, slower courses of dialysis; in 1994, the first patient was trained to administer hemodialysis at home six nights per week. It doesn't suit everyone, but patients who can do it feel better, have less risk of heart disease and often don't need their blood pressure medication anymore.[33,34] Nocturnal dialysis is also less expensive.[35,36] Dr. Andreas Pierratos at Humber River Regional Hospital remembers one patient who had calcium deposits under his skin all over his body and was so weak he couldn't put on his shoes. Within nine months of starting nocturnal hemodialysis the nodules had almost all disappeared.[37] Now he's back coaching hockey.

28. Wright CJ, Chambers K, Robens-Paradise Y, et al., Evaluation of indications for and outcomes of elective surgery, CMAJ 2002;167:461-466.
29. Bodenheimer T, Lorig K, Holman H, et al. Patient self-management of chronic disease in primary care. JAMA 2002;288:2469-2475.
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31. Saksvig BI, Gittelsohn J, Harris SB, et al. A pilot school-based healthy eating and physical activity intervention improves diet, food knowledge, and self-efficacy for native Canadian children. J Nutr 2005;135:2392-2398.
32. Stewart M, Ellett F, Golding S, et al. "Evaluation of an Organization for Integrating Physicians' Services in the Home." Canadian Health Services Research Foundation. Found at: http://www.chsrf.ca/final_research/ogc/pdf/stewart_e.pdf. Accessed February 27, 2006.
33. Chan CT, Floras JS, Miller JA, et al. Regression of left ventricular hypertrophy after conversion to nocturnal hemodialysis. Kidney Int 2002;61:2235-2239.
34. Chan CT, Jain V, Picton P, et al. Nocturnal hemodialysis increases arterial baroflex sensitivity and compliance and normalizes blood pressure of hypertensive patients with end-stage renal disease. Kidney Int 2005;68:338-344.
35. McFarlane PA, Bayoumi AM, Pierratos A, et al. The quality of life and cost utility of home nocturnal and conventional in-center hemodialysis. Kidney Int 2003;64:1004-1011.
36. McFarlane PA, Pierratos A, Redelmeier DA. Cost savings of home nocturnal versus conventional in-center hemodialysis. Kidney Int 2002;62:2216-2222.
37. Kim SJ, Goldstein M, Szabo T, et al. Resolution of massive uremic tumoral calcinosis with nocturnal home hemodialysis. Am J Kidney Dis 2003;41:E12.

Even patients admitted to hospital would likely benefit from better care in the community. A study in Ottawa found that one in six seniors was readmitted to hospital within 30 days of discharge.[38] The Sault Ste. Marie Group Health Centre tries to avoid that kind of result — it ensures that all patients with congestive heart failure are followed up by nurses after hospital discharge and has reduced readmission for those patients by 60 percent.

Reducing demand for specialist care

Many Canadians face long waits for specialist visits — waits that in many cases might be cut if family doctors could receive more support to handle the case themselves. Many specialists, for examples, book one-hour appointments for patients, but sometimes a five-minute phone call between the family doctor and the specialist is all that's needed. The Hamilton Health Service Organization's Mental Health and Nutrition Program reduced demand for specialist care by strengthening primary care. In mental health, its teams of counsellors, family doctors and psychiatrists decreased referrals to the regional psychiatry clinic by 70 percent[39] while increasing the number of patients treated for mental-health problems by 900 percent. If Ontario used a similar model for all specialties, there could be little, if any, waiting for specialists. The province has already begun to put this "shared care" approach in place with Family Health Teams where family doctors work with other caregivers, such as registered nurses or nurse practitioners, social workers, pharmacists and others. The other health professionals add to the care the physician gives but also free up his or her time for patients who really need to see a doctor.

St. Elizabeth Health Care, one of the province's largest providers of home-care services, has developed @YourSide Colleague, a web-based program which offers 24 hour access to experts as well as patient self-management training and learning tools for professionals. St. Elizabeth caregivers can use technology, for example, to send digital pictures of wounds to experts for advice on how to treat them. St. Elizabeth tested the technology in 50 Manitoba First Nations communities and is introducing it throughout Canada's Aboriginal communities.

4.7 Dealing with waits and delays in the health system

Delay is another barrier to care. Not all waits are unacceptable — Dr. Hans Westenberg of Kingston says "Waiting time is not always such a disaster as people make out. A lot of people get better in that waiting time."[40] Others delay to prepare for surgery. Often, it's the unpredictability of the delay that poses a problem. People may make special arrangements for care of their home or dependents when they have surgery. With a specific date, they can mobilize family and friends; without one, or with frequent cancellations, it can be impossible to make plans.

Temporary surges

Waits do not always mean there is a shortage — for example, a wait to get into a hockey arena doesn't mean there aren't seats for everyone once they get inside. There's just a bottleneck at the doorway. Increasing the number of seats won't solve that problem. Similarly, even when average capacity in health care is sufficient to meet average demand, temporary surges in demand or temporary shortage of capacity can lead to long lines for care. In our hockey arena example, there might be no waiting if spectators arrive in a constant stream during the hour before the game, but there will be a long wait if everyone arrives at game time.

Mismatches in capacity versus demand

In health care, if a program can always treat 10 patients per day and there are always 10 patients a day, there will be no waiting list. But if capacity and demand average 10, but vary between nine and 11, there may be nine slots available for patients or vice versa. Too many patients add to the wait list but if nine patients come when 11 slots are available, two slots are wasted. We can't put the staff time assigned to the unit into a bottle for later use. Unmet need becomes a waiting list, but unused capacity is wasted and lost forever. In this example, just one day per week where 11 patients turn up when there's room for nine could create a 100-person wait list after one year. It's easy to see why the solution seems to be to ask for more resources.

Most people think demand for health care varies more than capacity because illness is unpredictable, but hospital capacity actually varies more for a variety of reasons. Hospitals usually only admit elective patients Sunday through Thursday, provide fewer services over holidays and, although illness doesn't vary much day to day, Ontario hospitals discharge more than twice as many patients on Friday as they do on Sunday.[41] Patients admitted on Friday and Saturday typically waited the longest time for urgent diagnosis and treatment; overall in Ontario hospitals, only 5 percent of urgent procedures are performed on Saturday and Sunday even though the weekend is nearly 30 percent of the week.[42]

Unintended limits on capacity

Often, providers don't have the information they need to be more efficient. Most can track how much care they give but not how much demand there is for it; they only count appointments, not the people turned down. One study found a procedure room booked patients every 30 minutes, even though the average procedure took 17 minutes.[43] The unit had about 50 percent more capacity than it knew. The Kingston Surgical Booking System keeps track of the time individual surgeons use to perform procedures and manages bookings to ensure operating rooms are fully, but not over, used.

Failure to make best use of care provided by patients and their families

Because patients and their families provide so much health care, especially after surgery, they often determine how long a patient stays in hospital, whether they need home-care services, and whether they are re-admitted to hospital. Too often, surgery is cancelled at the last minute after someone has planned a vacation to provide care to a parent in hospital and help him or her get home. Without that support, discharge may be delayed and more home-care services needed.

38. Forster AJ, Clark HD, Menard A, et al. Adverse events among medical patients after discharge from hospital. [Erratum appears in CMAJ 2004;170:771] CMAJ2004;170:345-349.
39. Kates N, Crustolo AM, Farrar S, et al., Mental health and nutrition. Integrating specialist services into primary care, Can Fam Physician 2002;48:1898-1903.
40. Lukits A. A Physician for the Living and the Dead. Kingston Whig Standard. January 28, 2006.
41. van Walraven C, Bell C. Risk of death or readmission among people discharged from hospital on Fridays. CMAJ 2002;166:1672-1673.
42. Bell C, Redelmeier D. Waiting for urgent procedures on the weekend among emergently hospitalized patients. Am J Med 2004;117:175-181.
43. Carter M. Evidence for Improvement vs. Evidence for Judgment: Choosing the Appropriate Tools for the Task. Sixth International Conference on the Scientific Basis of Health Services. Montreal September 20, 2005.

Too many line ups

Sometimes in health care, we have to make hard choices — such as when there's only one bed in intensive care and two patients need it. But usually, there is enough capacity and we're just not using it efficiently. Multiple waiting lists increase the likelihood of long delays. In Ontario, there is little delay for radiation treatment for cancer, partly because treatment capacity has been increased but also because patients are referred to a community's radiation oncology clinic rather than a specific doctor. In 2005, the Cardiac Care Network of Ontario started notifying wait-listed patients and doctors about shorter waits in other parts of the province. Patients started to move to centres with shorter lists and from July to September 2005, 1,440 more patients got their heart procedure within the recommended maximum wait times.

Pooling patients: faster care

One of the key tactics to improve flow is to put all patients on a common wait list — like a line up at a bank, more people can be processed. With separate lines, some move more quickly than others.

Sometimes pooling is interpreted as having to see a different doctor on every visit. However, once a patient sees a doctor, he or she could continue to provide care for that problem to ensure continuity of care.

Some people might want to see a specific doctor who might not be next on the list. But patients or family doctors who want certain specialists could be accommodated while maintaining the smoother flow overall of central referrals.

In reality, very few patients or their family physicians have a preference for one specialist over another. An American study concluded other doctors considered heart surgeons who trained in certain prestigious schools as the community's "best doctors" even though they did not necessarily have fewer patients die.[44]

Increasingly, in community hospitals, patients are seen by "hospitalists," family doctors or specialists in internal medicine or pediatrics who take patients in turn as they arrive. Studies show hospitalists are associated with decreased costs and better results.[45,46]

In a number of surgical practices, including Kingston's vascular surgeons, the next doctor takes the next patient. The most common example of pooling is anesthesiology, where it's standard practice — and for many patients and procedures, that doctor might have as much influence over the overall success of the operation as the surgeon.

We have barely begun to look at this issue in Ontario. But clearly more flexible approaches can help patients get care faster.

"Just-in-time" or "advanced access" service

One example of new ways of approaching waits and delays in ambulatory care is called "advanced access." Many family doctors have waits of four weeks or more for routine appointments. The doctor's capacity may be close to meeting demand, but he or she is servicing last month's demand today while postponing today's work until next month. If doctors could clear their backlogs, then theoretically they could go to advanced access, or "just-in-time" servicing.

The Rexdale Community Health Centre serves 6,000 patients in a disadvantaged community in northwest Toronto with the equivalent of only 1.8 full-time family physicians. In 2003, patients waited four to six weeks for appointments. The centre temporarily increased resources to clear its backlog and then went to same-day service by redesigning services as well, notably by giving two nurses, who previously spent a lot of their time on the telephone with patients, a bigger role. Now they spend much of their time caring for patients with minor illnesses. Cambridge's Grandview Medical Centre and Toronto's Lawrence Heights Community Health Centre in Toronto have also implemented advanced access, which can be used to reduce delays for any health service, from walk-in visits to more complicated procedures.

Improving the flow of patients through the whole course of care

Queuing theory is a branch of mathematics that deals with waits and delays by improving flow of services. There is always one stage that's slower than others but the goal of queuing theory is to even flow by reducing variation as much as possible and planning bottlenecks for where they can be controlled most effectively. This is only possible when the whole pathway of care can be seen and managed.

Queuing theory is applied regularly for air traffic control, manufacturing processes and other aspects of day-to-day life but it's been little used in health care. This is not to suggest patients should be treated as inanimate objects on assembly lines; but the same techniques work.

Where there are long waits for linked services, the first step is to map the whole course of care. Sometimes, this process immediately suggests re-design possibilities. When staff at the Toronto East General Hospital looked at their lung cancer pathway they found long delays between the initial chest X-ray and final diagnosis. Patients waited for a referral, then waited to see a specialist, then waited for a CAT scan. They reduced waiting times by allowing the radiologist who read the suspicious X-ray to book the specialist consultation and the CAT scan. The overall time from a suspicious X-ray to a definitive diagnosis of lung cancer plummeted from 128 days to 31 — a reduction of more than 75 percent.[47]

Most health-care episodes involve several steps, with referrals from family doctors to specialists who ask for tests and may recommend further treatment from different providers. These kinds of multi-step services are particularly plagued with delays; at each step in the process, the patient may face waits of months. But access to multi-step services can be greatly improved by taking a health system view of the whole care process. Ontario has developed a strategy for dealing with stroke that links services all the way from prevention to rehabilitation. As a result, Ontarians have the world's best access to "clot-busting" drugs — 11 percent of Ontario stroke patients get them, compared to 3 percent in the U.S. and most other parts of the world.

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46. Tenner PA, Dibrell H, Taylor RP. Improved survival with hospitalists in a pediatric intensive care unit. Crit Care Med 2003;31:847-852.
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Interestingly, Tommy Douglas, the founder of Medicare, recommended exactly this approach to remedy care delays 25 years ago: "I have a good doctor and we're good friends. And we both laugh when we look at the system. He sends me off to see somebody to get some tests at the other end of town. I go over there and then come back, and they send the reports to him and he looks at them and sends me off some place else for some tests and they come back. Then he says that I had better see a specialist. And before I'm finished I've spent within a month, six days going to six different people and another six days going to have six different kinds of tests, all of which I could have had in a single clinic."

Using proven best practices

Through research, some clinical procedures and practices have been found to be as effective, or better, than others while using far fewer resources. Here are some examples:

- In 2002, Dr. Tim Whelan and other investigators at Hamilton's Regional Cancer Centre found that 16 radiation treatments over 22 days was as effective as 25 treatments over 35 days for early stage breast cancer patients.[48] In 2001, doctors from the Kingston Cancer Centre estimated that if all of Ontario used the shorter courses of radiation found in some regions, the number of treatments required would drop by 12 percent[49] the equivalent of 15 radiation machines, enough to eliminate waiting lists for radiotherapy.
- Urinary incontinence is a terrible problem for many older Ontarians, affecting up to half the residents of long-term care facilities. Many patients are too embarrassed to ask for help and fewer than half of family doctors are comfortable with the topic or have an organized plan for it.[50] From 1998 to 2002, the use of urinary catheters in Ontario chronic-care facilities increased 20 percent. Catheters avoid the use of adult diapers, but have risks, especially infection, and cost an extra $3,000 to $10,000 per year per patient. The Ontario Hospital Report Research Collaborative and the Ontario Women's Health Council used best-practice guidelines developed by the Registered Nurses Association of Ontario to tackle the problem.[51] In Woodstock General Hospital, almost half the chronic-care patients with catheters had them removed and became continent. Eleven of 13 incontinent patients who were admitted to rehabilitation regained bladder control and were discharged home. Other hospitals reduced use of catheters by 20 percent and reduced urinary tract infections by 83 percent among patients, most of them elderly women.
- Ontario is known around the world for the Ottawa Ankle Rules,[52] a guide for deciding whether an injured ankle needs an X-ray. Used properly the rules can cut the number of X-rays by up to 40 percent without missing anyone who actually has a broken bone.[53] However, a study of Canadian emergency physicians showed that less than one-third were using the rules correctly.[54] The same group has developed the Canadian cervical spine rule for patients with possible broken necks and the Canadian CAT scan rule for patients with head injuries.[55,56] These decision tools could also reduce the need for X-rays by 40 percent or more.[57]

There are many other proven ways to reduce unnecessary use of health care but as section 6 will show, there are challenges to spreading the use of proven knowledge and best practice.

4.8 Conclusions

We are very pleased to report on a number of Ontario-based solutions that demonstrate how access barriers are being overcome. They show that with the right tools, information and incentives, care teams across the province are getting the job done. However, there are still barriers to access across a range of health services and some groups, in particular the poor, immigrants, rural residents and Aboriginal Ontarians, face greater difficulties getting the care they need. Also worrying is the evidence we found that some resources are wasted because of lack of knowledge or failure to use proven best practices.

One of the key factors that affect the capacity of the health system and whether patients can get the care they need is whether we have the right number of people with the right skills in the right places. The next section looks at the issue of human resources for health care; after that we look again at the question of best practices and how well (or not so well) they are being adopted across the health system.

5.0 Getting Health Human Resources Right

The essence of health care is people. There is a vast framework of drugs, machines, computers, buildings and other resources but none of it would function without the human beings who provide care — working to prevent illness in the first place, doing the work to diagnose problems, giving the treatments required and supporting patients when they need it. There are even more people working behind the scenes, providing the services that support this work. The human resources of health care are the physicians, nurses, therapists, social workers, pharmacists, nutritionists and other health professionals, as well as a wide range of support workers, researchers, technicians and administrators.

However, for a health-care system to do a good, efficient job helping patients, it must have the right number and types of workers, with the right skills, where and when they are needed. Furthermore, most of the potential to improve the quality of the health-care system lies in the skills, knowledge and motivation of that workforce. But what are the right number of people and the right mix of skills? How can we get them into the right place at the right time? How well prepared are we in Ontario to meet the needs of our population?

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56. Stiell IG, Wells GA, Vandemheen KL, et al. The Canadian C-spine rule for radiography in alert and stable trauma patients. JAMA 2001;286:1841-1848.
57. Stiell IG, Clement CM, Rowe BH, et al. Comparison of the Canadian CT Head Rule and the New Orleans Criteria in patients with minor head injury. JAMA 2005;294:1511-1518.

5.1 The looming crisis, and some promising steps

The biggest issue facing our health system is the fact Ontario's population is aging, which will cause increasing demand for health services. But at the same time, we're expecting significant numbers of caregivers to retire; more than one-third of physicians in Ontario are over age 55, and over half the nursing workforce could retire in the next 10 years.[58]

Getting the right number of qualified people into place is a complex task because of a variety of factors:

- The public's needs are changing.
- The number of care providers entering and leaving practice don't match.
- It's hard to attract and keep qualified professionals in some areas.
- Health-care training programs can take a long time.
- The way health professionals want to practice is changing.
- There are many new developments in prevention, screening and treatment.
- The health system can be inflexible, particularly in funding and regulation.
- Technological change is improving productivity.
- We don't have all the data we need on health professionals, including how many there are and where, their ages, sex and what they do.

Some promising steps have been taken:

- There are more spaces to train physicians, nurses, midwives and pharmacists, and to assess and train internationally educated health professionals. The province has promised to keep expanding through 2009/2010.
- New health-care training programs have opened — the Northern Ontario Medical School in Sudbury and Thunder Bay, and community-based nursing degree programs in Dryden, Fort Frances, Kenora and Sioux Lookout. Their graduates may be more willing to work in rural and northern Ontario.
- There's a new focus on keeping nurses in the workforce, including safer equipment to reduce absence due to injury, making jobs full-time instead of part-time or casual, and offering professional development and mentorship programs.
- An assistant deputy minister of health human resources, who reports to both the Minister of Health and Long-Term Care and the Minister of Training, Colleges and Universities, has a two-year assignment to develop and co-ordinate plans for the health-care system, and the training programs needed to supply that system.

Laying the Foundation for Change: A Progress Report on Ontario's Health Human Resources Initiatives (December 2005) sets a number of targets for 2006–2007. The Ontario Health Quality Council will track and report on these initiatives in our 2007 report. Questions we'll ask include:

- Has a comprehensive, integrated strategy been developed for human resources in health?
- Does it include plans to address sectors facing particularly challenging personnel shortages, such as in public health, mental health, home care, long-term care and underserved communities (Aboriginal, Francophone, rural and remote, and recent immigrants)?
- Does the strategy take into account changing patterns of practice and quality of work life professionals are demanding?
- How well does it forecast the optimal number and best mix of providers needed to meet population health needs in Ontario?
- Have we developed databases to track the supply of health professionals other than physicians?
- Is the growth in training positions on track to fill forecast needs?
- Have all available training spaces been filled by qualified students/trainees?
- Has access improved for internationally-trained health providers seeking information and job opportunities in the Ontario health system?
- Is there evidence people in rural and remote areas are getting more equal access to necessary care?
- Are we creating new roles for health-care providers to meet the needs of a growing and changing population?
- What's being done to increase the flexibility, responsiveness and productivity of the health workforce so it can adapt to changing needs, new knowledge and technology to improve the quality of care?

5.2 Conclusions

The supply of health professionals has increased steadily but not kept pace with population growth. That situation will worsen as the population ages and demands for health services increase, just when we expect a significant number of retirements in the health professions. We applaud commitments to expand the number of health professionals training in Ontario and to develop greater ability to assess foreign-trained professionals. The September 2005 appointment of a senior official responsible for health human resources was also a positive step. Progress will be reported on in our 2007 report.

6.0 Spreading the Use of Proven Knowledge and Best Practice

The skilled professionals and administrators of Ontario's health-care system are backed up by the work of excellent researchers. We know a great deal from their research and innovations over the last 20 years about ways to improve the quality of health care. About $750 million is invested annually in Ontario's 20 research hospitals and health-research institutes; they and the universities they're affiliated with do over 70 percent of the academic health research in Ontario. They employ more than 10,000 scientists, clinical investigators and other researchers. And despite all this knowledge and these experienced, dedicated people, there are still wide gaps between what we know about quality care and the care the people of Ontario sometimes receive.

Part of the problem is the nature of the research being done. Most focuses on "discovery" research, working to understand health and disease, or "translational" research, which leads to new diagnostic tools and innovative therapies. Only a small proportion of research is "health-services" research, the study of the most effective ways to deliver high-quality care or to reduce medical errors and improve patient safety. Even less effort goes into "knowledge transfer," which is the work that gathers evidence on how to improve care put into practice by professionals and managers, and the policies of governments. We don't research it enough and we don't practice it enough.

58 "Laying the Foundation for Change: A Progress Report on Ontario's Health Human Resources Initiatives." Ministry of Health and Long-Term Care, p.17, December 2005

Getting knowledge into practice is tremendously difficult. At one time, we thought better communication was all that was needed to bridge the gap between what researchers knew to be the best care and how patients were actually treated. Now we know it takes more than plainly written guidelines to bring research-based changes to health care. We need to focus more on developing effective ways to turn research into practical knowledge — especially by getting researchers and providers to work together, so successful innovations are more quickly and directly put into use. Since the late 1990s, the Canadian Health Services Research Foundation has been demonstrating that use of knowledge from research is best assured by partnerships between researchers and users.[59] However, researchers from the Agency for Healthcare Research and Quality in the U.S. add that "there is no silver bullet — multi-faceted interventions that are mutually reinforcing are necessary to create behavior and organizational change."[60]

To put it in marketplace terms, we need:

- A supply side that creates useful innovations
- A demand side that sees the need for them, is in a position to use them and has reasons for wanting to use them
- Effective ways to communicate needs and ideas between those groups

But the three elements aren't working as well as they should be to ensure that knowledge and practice are consistently combined to improve the quality of care. Researchers mainly focus on publishing in journals and answering questions defined by topic, not by health-system needs. Care providers are increasingly aware of the value of research, but few have the time or institutional support to find it and use it; it takes special skills to acquire, appraise and adapt research to improve quality of care.

6.1 The high cost of not doing what we know

Failing to apply the research we know to be effective and practical has terrible consequences. Section 4 reported on some of the opportunities to use health resources better, by delivering care according to proven best practice. About 40 percent of X-rays could be avoided if the Canadian Cervical Spine Rules or the Ottawa Ankle Rules were used — they determine whether injuries in those areas need to be X-rayed. About 12 percent of radiation treatments could be eliminated for early-stage breast cancer patients.

Failing to put proven research into practice leads to poorer results for patients. In a 2003 article in the New England Journal of Medicine, Elizabeth McGlynn and her colleagues surveyed thousands of adults in 12 U.S. cities and found they were getting only 54.9 percent of recommended care, whether it was preventive or to treat acute or chronic illness.[61] Almost half of established, evidence-based actions for 30 acute and chronic conditions and preventive care were not delivered.

There is no reason to believe Canadian patients fare any better. One example in McGlynn's paper is that fewer than 25 percent of diabetics were getting the blood-glucose monitoring they needed, although in Britain a move to better manage blood-glucose levels reduced blood flow problems (which in diabetics often lead to amputation) by 25 percent. Data presented in the appendix of this report shows that only about half of newly-diagnosed diabetics have an eye exam within a year of that diagnosis, while the clinical guideline says they should all get eye exams in that time to prevent blindness, a complication of diabetes.[62]

There are too many stories like that, where compelling evidence and clear recommendations have not budged practice. It's been known for decades, for example, that multidisciplinary "stroke units" reduce death and disability, get stroke survivors home faster and give them higher-quality lives. Halifax's Queen Elizabeth II Health Sciences Centre opened a stroke unit in 1997. Median length of stay for stroke patients went down by two days, the odds of deep-vein thrombosis decreased by 68 percent, while deaths and admission to long-term care homes each went down by 3 percent.[63] In the same period, with the same information available to them, only 4 percent of Ontario hospitals had stroke units. Today in Ontario, there are still variations across the province in the percent of stroke patients who die within 30 days while in hospital; if guidelines are followed, the variations should be minor.[64] However, the launch of the Ontario Stroke Strategy in 2000 is improving access to proven therapies for stroke.

6.2 Clear benefits when research and practice are linked

The paradox of the failure to adopt evidence-based innovations is that the benefits of many are so clear, and have often been proven in other industries, as when John Morey and his colleagues used "crew resource management" programs from the aviation industry to train emergency departments in team work. Emergency departments and airplane crews face similar, high-stakes outcomes if they make mistakes. Formal training in team behaviour for emergency staff — such as teaching problem-solving strategies, good communication and workload management — saw clinical error rates in the test departments drop from 30.9 to 4.4 percent in less than 12 months.[65] That's a huge improvement; but such training is not the norm.

When the people doing the research are closely linked to the people who use it, knowledge is transferred more quickly. The International Term Breech Trial, led by Canadian investigators, studied 2,088 pregnant women about to give birth whose babies were in the wrong position, to see the impact a policy of delivering all breech babies by Caesarean section would have. The results were dramatic: a three-fold decrease in death and serious illness in the infants. A year later, 92.5 percent of hospitals around the world that participated in the study had made it standard practice to deliver breech babies by Caesarean. It was a remarkably thorough, remarkably fast turnaround.[66]

The R.B.J. Schlegel-University of Waterloo Research Institute for Aging, a partnership between university researchers and Winston Park and Oakwood Retirement Communities, understands the link between researchers and practitioners is key to creating high-quality research and readiness to use it. Their work on improving care giving and seniors' quality of life is done in a "living research environment," where they both develop knowledge and translate it to practical training applications, so it's adopted quickly. Front-line workers help define concepts and needs for research projects, improving its relevance and likelihood of having an impact. The research leads to practices which are immediately used and the skills are incorporated into training new health-care professionals and upgrading training for current practitioners.[67]

59 Denis JL, Lomas J. Researcher decision-maker partnerships. J Health Serv Res Policy 2003;8:1-68.
60 Nieva V. From Science to Service: A Framework for the Transfer of Patient Safety Research into Practice. Found at: www.ahrq.gov/downloads/pub/advances/vol2/Nieva.pdf. Accessed March 4, 2006.
61 McGlynn, Elizabeth A., et al. The quality of health care delivered to adults in the United States. N Engl J Med 2003;348:2635-2645.
62 See chart in appendix. Data from CIHI and MOHLTC OHIP Physician Claims.
63 Phillips S, Eskes GA, Gubitz GJ, et al. Description and evaluation of an acute stroke unit. CMAJ 2002;167:655-660.
64 See chart in appendix. Data from CIHI Hospital Morbidity Database.
65 Morey J, Simon R, Jay GD, et al. Error reduction and performance improvement in the emergency department through formal teamwork training: evaluation results of the MedTeams project. Health Serv Res 2002;37:1553-1581.
66 Hogle KL, Kilburn L, Hewson S, et al. Impact of the International Term Breech Trial on clinical practice and concerns: a survey of centre collaborators. J Obstet Gynaecol Can 2003;25:14-16.
67 RBJ Schlegel-UW Research Institute for Aging. Project Summary. [Information Sheet] 2005 January.

6.3 Organizing for research-informed, quality care

It is not enough to count on researchers to make the link to practice to improve quality of care. Health care organizations must invest in the effort to get researchers, clinical leaders, policy makers and administrators working together to use research knowledge to align outcomes with administrative, professional and financial incentives. Organizations that make this commitment have achieved remarkable results.

A recent survey[68] assessed how Ontario hospitals used the women's health performance report included in Ontario's annual *Hospital Report*. In one-fifth of organizations there was no impact whatsoever and less than half got beyond the stage of reading the report. Only one in five organizations surveyed claimed the report had an impact on patient care. If the hospital had women's health as a written strategic priority, the report was more likely to have impact.

Cancer Care Ontario is one organization that has applied a systematic approach to drive quality. This agency:

- Distributed standard treatment guidelines through its Program in Evidenced-based Care
- Created a Cancer Quality Council
- Implemented an accountability framework making clinical leaders responsible for quality
- Required quarterly reports on quality indicators
- Gave less money to centres not meeting treatment standards

These are powerful incentives for change. But Cancer Care Ontario had powerful examples to show how they work. Studies in Ontario in the 1990s showed wide variation in the number of deaths following cancer surgery. For the removal of a cancerous pancreas, death rates varied as much as five percentage points. The procedure is rare and high-risk — and a disproportionate number of the deaths were in hospitals that did very few of them. In pancreatic surgery, 27 percent of hospitals made changes in response to the guideline.[69] Before the study, only 17.8 percent of the operations were done in hospitals that did 10 or more per year. By 2003, 62.3 percent were done in the more experienced hospitals and the rate of deaths within 30 days dropped from 10.2 to 6.2 percent. That's how it should work — researchers identified the problem, administrators, policy makers and surgeons worked with them to develop a solution and Ontarians got better care.

In the U.S.A., the Veterans' Affairs health-care system took the radical step of bringing research in-house and making it an essential element of day-to-day care,[70] linking researchers and providers to encourage quick adoption of improvements in patient care. Among the benefits: between 1995 and 2000 the number of VA patients whose diabetes was controlled increased from 51 to 94 percent. At the same time it was making these substantial improvements in care, the organization cut costs by 25 percent per patient. Veterans' Affairs spends US$50 million a year on health-services research alone.

Ontario's academic hospitals are taking the lead in developing quality improvement programs. Quality committees, often led by senior physicians reporting to the hospital's governing body, are responsible for introducing new methods for better care. The Council of Academic Hospitals of Ontario reports many of their members are working together to deliver better care. For example, 10 hospitals in the Toronto area are standardizing post-operative care for hip and knee replacement, using evidence-based guidelines specially revised for the project.[71]

Many other health care organizations have less capacity for quality improvement, but they can participate in the self-assessment and evaluation program of the Canadian Council on Health Services Accreditation. In 2004, the self-assessment program was used by 195 Ontario health organizations, including 39 acute-care facilities, 118 long-term care institutions, and 23 home-care organizations.[72] Half the organizations, including two-thirds of the hospitals, came up with at least one recommendation to improve quality. Most of the recommendations concerned failure to develop quality-improvement plans or failure to evaluate processes and services to improve quality.

Rick Roger, past president of the Vancouver Island Health Authority, lists ways managers and organizations can be more open to evidence-based change: develop relationships with researchers, send staff to work with them, create learning opportunities, be open to scrutiny, and be prepared for embarrassment as you improve. To support health care leaders in these efforts, the Canadian Health Services Research Foundation runs Executive Training for Research Application (EXTRA) where health-care managers learn the value of research and how to find and use evidence.[73]

Governments also need to ensure policy and funding are in line with allowing improvement. The Ontario Health Research Alliance told the Ontario Health Quality Council in a presentation that one home-care study showed a new approach to treating leg ulcers led to 56 percent healing after three months, compared to 23 percent after three months with the traditional method. But the change required nurses to spend more time with patients and the province did not increase payments to homecare agencies, so the treatment wasn't widely adopted and patients are not getting the best care.

Finally, we need to make it easier for health practitioners, managers and administrators to find, adapt and use research. Busy professionals can't review every study that might help in practice. We need to dedicate resources to gathering, sifting and distributing the ideas that will improve practices in health-care delivery and management. If electronic health records and information management systems were in place, relevant information could be delivered right at the point of care.

6.4 Conclusions

Ontario can be proud of its health-research capacity. About $1 billion was spent on health research in 2005, of which $750 million went to fund work at health-research institutes and the teaching hospitals and universities with which they're affiliated. Ontario's scientists and researchers are exemplary.

But the question remains — in the end, how much of this research investment makes its way into improved performance for the Ontario health system? Evidence suggests the health system is missing opportunities to benefit fully from our investments in health research. There are a number of barriers to putting new knowledge into practice, including policies that unintentionally block change and simple lack of time. We also need more collaborative work by researchers and practitioners, better methods of sharing knowledge and getting it into practice, and information systems that deliver the best knowledge available to caregivers, right where they work.

68 Siu ECY, Brown AD. The use of a women's health performance report in Ontario acute care hospitals. In print. (Reference to be updated)

69 Urbach DR, Bell CM, Austin PC, et al. Differences in operative mortality between high- and low-volume hospitals in Ontario for 5 major surgical procedures: estimating the number of lives potentially saved through regionalization. CMAJ 2003;168:1409-1414. See also www.cancercare.on.ca/index_abouttheFEBC.htm

70 Lomas J. Health services research. BMJ 2003;327:1301-1302

71 Kitts J, President of Council of Academic Hospitals of Ontario. Personal Communication, 2006

72 Data provided by the Canadian Council on Health Services Accreditation, February 2006

73 Roger R. A Decision-Maker's Perspective on Lavis and Lomas. Healthcare Policy 2005;1:49-54

Ontarians expect and should receive highest and best value from their significant investment in research. In 2006, the quality council intends to begin a research effort, international in scope, to determine the best ways to maximize sharing and use of knowledge.

7.0 Transforming Health Services Delivery

Ontario's health-care system is made up of many parts, ranging from family physicians in their own offices to community health clinics, small and large hospitals, home care, long-term care, community care access centres, rehabilitation centres, mental-health agencies, public-health and highly specialized units in hospitals for cancer or cardiac care.

The challenge when health problems arise is to find and then move among all the parts of the health system, sometimes facing long waits between steps. Illness or accident may take you to your family doctor or the emergency room to a specialist physician, from there to hospital, then to a rehabilitation centre or to home care or a long-term care home. If this range of resources isn't co-ordinated, it's difficult to be sure you'll find the right care at the right time in the right place; when it is co-ordinated you get better care and the health system makes better use of its resources.

In the fall of 2004, Ontario launched four initiatives to improve co-ordination and integration of care in the health system and to use resources more effectively. These initiatives are:

7.1 Family Health Teams

Family Health Teams are designed to provide better access to round-the-clock primary care. The teams offer the full range of primary-care services — help to stay healthy, management or cures for disease or injury, and rehabilitation and palliative care. They provide clinical services and are the patient's contact in getting other types of health services to ensure continuity of care. The teams are multidisciplinary, which should let health professionals provide more appropriate care for a greater number of people. As of December 2005, the ministry had approved 100 family health teams and called for more applications.

7.2 Local Health Integration Networks

Until recently, the Ontario health system was a set of separate delivery units, with little integrated planning and few incentives to work together. Local Health Integration Networks have been created to plan, integrate and fund local health services in 14 areas of the province. The integration networks are intended to oversee, co-ordinate and fund health services that are delivered in hospitals, long-term care facilities, community health centres and through community support services and mental-health agencies. They will determine health priorities in their geographic areas by working with local providers and community members.

Quality improvement planning by the integration networks is to be aligned with the priorities and resource allocation decisions of the ministry and, through accountability agreements between the networks and providers in their communities, performance data is to be reported for each annually. It should show how they are doing in developing a high-performing health system.

7.3 Wait Time Strategy

Ontario's goal is to reduce wait times and increase access to five major health services: cancer surgery, cardiac procedures, cataract surgery, hip and knee replacements, as well as MRI and CT exams. The strategy has five components:

- Making hospitals accountable for achieving the targets they're funded for
- Creating a provincial information system to help manage and monitor wait times
- Standardizing best practices and setting up coaching teams to help hospitals use resources effectively and efficiently while maintaining quality and safety
- Evaluating how patients do
- Reporting to the public on the web (http://www.waittimes.net)

7.4 Information management

The information management strategy is focused on producing better data, supporting accountability and quality improvement through performance measurement, and supporting evidence-based decision-making. To do that, Ontario must set standards for data quality and better co-ordination of data that's collected by health-care providers. The information must be consolidated into a common, integrated knowledge base. This is expected to be a long process because province-wide health information is inadequate and deteriorating.

7.5 Leadership

To build momentum for the transformation of health care in Ontario, the Ministry of Health and Long-Term Care created the Health Results Team, which is led by an associate deputy minister who reports to the premier and the health minister. The ministry recently announced a plan to transform itself to support efforts to improve co-ordination and integration of care. When its transformation is completed, the ministry expects to be organized and staffed to:

- Establish overall strategic directions and provincial priorities for the Ontario health system
- Develop legislation, regulations, standards, policies and directives for those directions
- Monitor and report on the performance of the health system and the health of Ontarians
- Plan for and establish funding models and levels of funding for the health-care system

This would change the ministry from doing program management to an approach that would have it doing portfolio management for health system as a whole. It holds significant promise for quality improvements in health-services delivery, health outcomes and population health.

7.6 Conclusions

The quality council believes the proposed changes could have profound effects on efforts to keep improving quality in health care. We also understand the magnitude of the proposed transformation. The ministry estimates that the transformation will require some 30 months before it is complete.

We believe the Health Results Team has created momentum in new directions and that the management model for the Wait Time Strategy will be effective in achieving improvement. But certain

things will have to happen if we want to keep momentum going for improving health-care quality:

- The transformation process must stay focused on attaining beneficial results under each of the attributes of a high-performing health system.
- The transformation must be governed in a way that ensures effective execution and change management.
- The transformation must maintain continuity and consistency in delivering health-care services throughout the course of change.
- The progress of the transformation must be tracked by measuring results against each of the attributes of a high-performing system; the results have to be publicly reported.

Getting the province's health information management system to an adequate level of competence to support this transformation will be a daunting but worthy challenge. The following section takes a closer look at Ontario's progress in this area.

8.0 Using E-health to Transform Ontario's Health System

8.1 What is e-health?

Ontario is committed to transforming health care through the use of "e-health" — the generic term for technology that includes electronic health records, health information management systems, and telehealth (technology-enabled care at a distance). Why? Health is far behind all sectors of the economy in moving to information technology. Companies and institutions of all kinds have reaped enormous benefits in the past 20 years in terms of quality, efficiency and productivity through technological innovation. Try to imagine going back to a time when we did our banking in person, with paper records. The e-health agenda is essentially about bringing modernization and innovation to the largest "industry" in Ontario, our health-care system.

Electronic health records are secure, private and patient-centred; using this information technology can improve care. Electronic records give authorized health-care professionals immediate access to accurate histories of patient health over their entire lives, including laboratory and radiology test results, past treatments, prescription drug profiles and immunizations, while protecting privacy and confidentiality.

Electronic records help clinicians avoid errors due to incomplete information and avoid repetition of tests because the results are in a paper file somewhere else. They allow up-to-date information to follow the patient across the continuum of care, so each health-care provider has access to necessary information. Ultimately, patients themselves should have secure, on-line access to their own records, so they can participate more knowledgably in their own care.

Electronic health records are very important for research and planning, as well. The data in them can be made anonymous and collected by a health information management system to provide system-wide information that can be used to improve performance at the local, regional and provincial levels. Using these forms of information technology should shorten waiting times and ensure the most appropriate care for Ontarians. They'll also let us develop performance objectives, monitor results and report to the public — all key to continuous quality improvement.

8.2 The benefits

Overall, electronic health records and a health information management system should have enormous impact on improving health-care quality. The benefits will include:

- Improved clinical decision making
- More effective diagnosis and treatment
- More effective clinical and non-clinical research
- Fewer medical errors
- Greater patient safety
- Increased efficiency
- Better access to appropriate services
- Monitoring and reporting to support continuous quality improvement

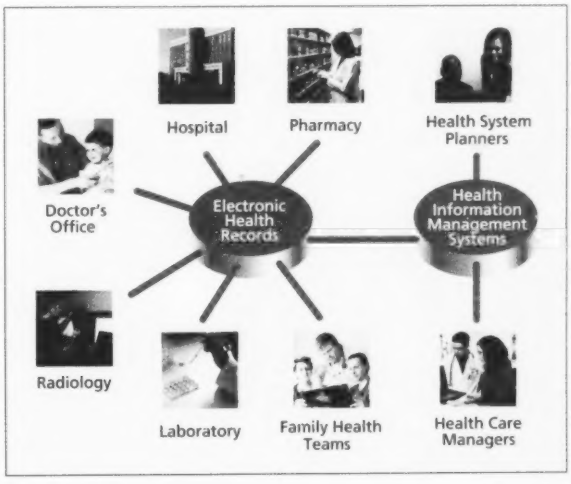
The quality council believes early province-wide implementation of electronic health records linked to a health information management system is the single most important step Ontario can take to support continuous quality improvement.[74] Along with other groups,[75] we believe that e-health technology can be a strategic catalyst for achieving a high performing health system.

Considerable work and investment have already gone into e-health in Ontario and they're starting to pay off. Telehealth is well established and is one of the keys the future success of the health-care system, particularly useful for managing chronic diseases. Nevertheless, the quality council feels e-health in Ontario is not moving fast enough. It needs more effective governance and a clearer overall plan. Once these are in place, e-health needs financial commitment.

8.3 E-health's progress in Ontario

While Ontario is committed in principle to developing electronic health records, we are concerned with slow progress toward the goal. There is a consensus from researchers, academics and clinical organizations at virtually all levels of care, across Canada and abroad, to show the great value of electronic records.

As the diagram below illustrates, there are many organizations involved in numerous e-health projects in Ontario.



74. Alvarez RC. The promise of eHealth – a Canadian perspective. eHealth International 2002;1:4
75. Institute of Medicine Committee on Quality of Health Care in America. "Crossing the Quality Chasm: A New Health System for the 21st Century." National Academy Press, Institute of Medicine, 2001

Notwithstanding all this activity, the quality council feels e-health in Ontario needs a clearer plan, and a stronger, more unified and effective governing structure. We're concerned that:

- The current body overseeing e-health does not have the authority to direct e-health development effectively. For example, a sample of 108 e-health projects and programs was executed by 45 entities under 14 funding authorities without reference to a unifying governance framework, a blueprint or a strategic framework.[76,77]
- Use of electronic health records in Ontario hospitals varies widely. Some have no electronic records, while others are already using them to different degrees — but critically, most hospitals have no ability to share data with other organizations electronically.[78]
- Nationally, only a minority of physicians has the option of electronic health records, and fewer use the system.[79]
- The quality of health information in Ontario is deteriorating due to lack of attention to gathering data properly and also to changes in the ways some clinical services are funded and delivered.[80]

E-health efforts in Ontario

- The Ministry of Health and Long-Term Care has created bodies to tackle different aspects of developing e-health, including the Ontario E-health Council, which is coordinating vision and strategy and an e-health office to develop a comprehensive e-health strategy. An assistant deputy minister has been put in charge of health information management.
- Smart Systems for Health is a non-profit corporation which reports to the Ministry of Health and Long-Term Care, and provides information technology products and services to Ontario's health-care sector.
- Ontario MD represents the interests of physicians in the development of e-health and has an initiative to introduce physician practice-management systems, also called electronic medical records.
- E-health projects are underway across the province, including: the Ontario Laboratory Information System, public health information solutions, emergency-room access to medication profiles, the Wait Time Information System, a regional diagnostic imaging system in Thames Valley and the Child Health Electronic Patient Record.
- Most hospital corporations in Ontario have strategic plans for improving their clinical information systems.

Compared to other jurisdictions, Ontario is clearly behind in e-health. The U.S. Department of Veterans' Affairs[81] has invested significantly in electronic health records over the last decade. The VA gathers health-care data for planning, evaluation and quality feedback and has used it to make health-care delivery more efficient, enhance disease prevention and improve chronic-disease management.[82]

Using its electronic records, the VA defined 17 measures of health-system quality and can track them to assess its performance.[83] Ontario can report fully on one of them, and in more limited ways on eight of the VA's 17 measures.[84] The Institute for Clinical Evaluative Sciences developed a set of indicators for the health system and population health in Ontario, but with the information management system we have, only seven of the proposed 16 indicators can be measured.[85]

Ontario's electronic health record and health information management systems are not sufficient to support health system planning and management and Ontarians are receiving less timely and appropriate care than they otherwise would be.

8.4 Ontario's potential return on investment

Canada Health Infoway was created by Canada's First Ministers when they agreed in September 2000 "to work together to strengthen a Canada-wide health infostructure to improve quality, access and timeliness of health care for Canadians." Canada Heath Infoway estimates the cost of implementing electronic health records across Canada is $10 billion, but says the benefits over 20 years will return more than $80 billion. Calculating these costs and benefits by Ontario's population[86] suggests electronic health records are likely to cost Ontario $4 billion to implement.

If these estimates are correct, then over 20 years, e-health benefits will save more than $30 billion,[87] which can be reinvested in the health system. In future research work, the quality council will refine the overall business case for e-health in Ontario to help justify the spending, which will result in a higher-performing health system that is safer, more effective, more efficient, patient-centred, integrated and better managed.

8.5 Need for effective governance of e-health

We are concerned that the move to health information management systems does not appear to be linked with developing electronic health records. We need a clear strategy for e-health in Ontario, where electronic records and information systems are explicitly linked in a unifying framework. To achieve that, we need a governance framework for e-health in Ontario and specific policies to give it full force and effect. But we don't have one, with the result being too many players pursuing unco-ordinated agendas.

Effective governance will require effective stewardship — the careful oversight of all parts of the project and management of resources. It will require overall strategic direction, with a single, ultimate point of accountability, and accountability to citizens through regular, thorough, reporting and communication.

76 "I & IT Services Review," Human Services Cluster for Information and Information Management Ministry of Community and Social Services, Ministry of Children and Youth Services, Ministry of Health and Long-Term Care, 2004 (unpublished).

77 "Research Synthesis Paper 1: Information Management," HDR Decision Economics Health Quality Council.

78 Ontario Hospital Association Survey of Electronic Health Record (EHR) Capability and Use of Ontario Hospital Corporations.

79 20.9% of family physicians have an electronic health record and only 16.9% of them use it. Ontario numbers are likely to be less than the national numbers. National Physician Survey 2004 http://www.cfpc.ca/nps/English/pdf/Physicians/Specialists/Specialty/Family_Med CCFP&Non%25J.pdf

80 "Improving Health Care Data in Ontario," ICES, January 2005.

81 The Veterans' Affairs health-care system in the U.S. was also cited in section 6 of this report for its success in bringing research in-house and making it an essential element of care.82 Jha AK, Perlin JB, Kizer KW, et al. Effect of the transformation of the Veterans' Affairs Health Care System on the quality of care. N Engl J Med. 2003;348:2218-2227.

83 Jha AK, Perlin JB, Kizer KW, et al. Effect of the transformation of the Veterans' Affairs Health Care System on the quality of care. N Engl J Med 2003;348:2218-2227.

84 Improving Health Care Data in Ontario, ICES, January 2005.

85 Improving Health Care Data in Ontario, ICES, January 2005.

86 Ontario accounts for 39% of Canada's population, Statistics Canada, 2005.

87 Booz, Allen, Hamilton. "10-year investment strategy." Pan-Canadian Electronic Health Record Benefits pro rated for Ontario based on population.

8.6 Conclusions

Success in e-health will require the appropriate means — both financial commitments and capacity to achieve business and strategic objectives. There will be risks that must be identified so appropriate risk-management practices can be put be in place, including controls and ethics frameworks. For example, some Ontarians we consulted questioned whether public agencies are the appropriate means for developing e-health solutions or whether there are other delivery models that offer a more cost-effective way to proceed with implementation of electronic health records and information management systems. These issues need further reflection by decision-makers.

Ontario does not appear to be giving high enough priority to introducing electronic health records; we do not see the sense of urgency for this project that would be in line with the enormous benefits of moving quickly to electronic records. With the exception of notable efforts to reorganize and coordinate regional telehealth networks, Ontario has not yet brought sufficient focus and urgency to e-health.

The government's plan to perform an operational review of its Smart Systems for Health Agency is an important move, but it's the overall stewardship of the e-health enterprise, including information management, electronic records and teleheath, that concerns us most. It needs its priorities determined and overall investment decisions made; it's at that level alternative approaches to investments must be considered.

The quality council believes early implementation of an electronic health record is the single most strategic step we can take to develop effective health information management, which we must have to support continuous improvement in the quality of health in Ontario. We also believe the slow pace of e-health implementation could be improved substantially with a stronger mandate for Canada Health Infoway.

The case of Cathy Smith — why electronic health records are so important

This example illustrates why an electronic health record is so important to timely, efficient, high-quality care. While the characters are fictional, many patients and providers have experienced a similar story.

In our health-care system, patients get care from multiple settings and organizations, ranging from their family doctors to specialists to pharmacies, hospitals and long-term care facilities. Each setting operates and collects data separately from the others. Cathy Smith is a 56-year-old woman who lives in Espanola, Ontario. Every two years since she was 50, Mrs. Smith has been referred for breast-cancer screening. On November 30, 2004, Mrs. Smith was referred for a routine mammogram by her family physician, Dr. Ken Prada.

On January 30, 2005, a radiology technologist did the mammogram, using the on-line diagnostic imaging system Espanola General Hospital shares with Sudbury Regional Hospital. Dr. Dawn Karan, a radiologist at the Sudbury Regional Hospital, reviewed the film and detected an unusual mass in Mrs. Smith's mammogram. She called Dr. Prada and mailed her report to him on February 1st.

Upon receiving the report of Mrs. Smith's mammogram, Dr. Prada asked Mrs. Smith to come in for a consultation. On the day of her appointment, February 18th, he explained the contents of the report and referred Mrs. Smith to Dr. Richard Shaw, a surgeon in Sudbury, for a biopsy. Dr. Shaw scheduled a biopsy for March 17th at Sudbury Hospital. When Mrs. Smith arrived in Sudbury, Dr. Shaw did blood tests and performed the biopsy. After the procedure he gave Mrs. Smith a prescription for Tylenol 3 for pain, which she took to Espanola to be filled; she mentioned to her pharmacist she thought she was allergic to codeine. Her pharmacist told her Tylenol 3 contains codeine and tried calling Dr. Shaw in Sudbury to discuss changing the prescription. After a day, Dr. Shaw and the pharmacist managed to speak to each other and agreed Mrs. Smith could have a different painkiller.

Dr. Shaw examined the test and biopsy results but could not determine whether the lump was malignant, so his nurse called Mrs. Smith and asked her to return to Sudbury for a follow-up consultation on April 23rd. Dr. Shaw explained the biopsy results to her and recommended breast surgery. On June 25th, Mrs. Smith had her surgery in Sudbury. The lump was removed and found to be benign. At Mrs. Smith's post-surgical consultation, Dr. Shaw suggested she routinely check for lumps. Six months later, Mrs. Smith had a regular appointment with Dr. Prada.

In our current health-care system, virtually all clinicians record their notes on paper and send clinical letters to each other by mail or fax. There is very little electronic information sharing. From the patient perspective, these islands of automation and data result in duplication of effort, time and resources, uncoordinated care and compromised health-system quality and productivity. Moreover, the administrative data that is collected does not report on many clinical events. Consider again what we currently know about Mrs. Smith's use of the health system.

Table 3 [88]

What we need to measure	Can we measure it accurately?	If "yes" why? If "no" why not?
Wait time between Mrs. Smith's family doctor referral for mammogram and the date of her mammogram	No	Referral information is not available. No information if the family doctor does not submit data to OHIP.
Screening mammogram	In part	Data is collected in part by the Ontario Breast Screening Program and partially through OHIP. The OHIP data cannot distinguish a screening mammogram from a follow-up mammogram
Wait time between family doctor referral to surgeon and date of appointment with surgeon	No	Referral informati is not available.
Biopsy result	No	Pathology results are not electronically available, with the exception of people who have cancer.
Time from surgeon visit to surgery	Yes	These data are available through hospital discharge data.

We gather so little administrative data our health-care system managers and planners can't measure what's happening and therefore can't manage it nearly as well as they should be able to. That's where e-health comes in; with it, we can consolidate information from multiple sources to create a patient-centred record that will allow health-care providers immediate access to essential clinical information. Patients can be assured essential information about their health is available for use by providers any time, anywhere. At the same time, electronic health records are providing the data needed to manage the health system as a natural by-product of clinical care. Organizations will no longer have to collect data through a separate, costly process.

In an e-health system:

- Dr. Karan could send her report to Dr. Prada electronically.
- Dr. Prada could view the mammogram on his computer, show it to Mrs. Smith, store Dr. Karan's report in Mrs. Smith's electronic medical record and send an electronic referral with the pertinent data to Dr. Shaw.
- Dr. Shaw could review Dr. Prada's request electronically, more quickly and more effectively. If Dr. Prada had ordered any tests, Dr. Shaw would be able to view them electronically and would not have to repeat them.
- Some of Mrs. Smith's surgical consultations with Dr. Shaw could be done at a distance using telemedicine so Mrs. Smith wouldn't have to keep travelling from Espanola to Sudbury. It would be more convenient and would possibly speed up her surgery date.
- When ordering Tylenol 3, Dr. Shaw would be alerted about Mrs. Smith's codeine allergy and would be prevented from ordering drugs to which she was allergic.
- Mrs. Smith's pharmacist in Espanola would receive Dr. Shaw's prescription for Cathy electronically, reducing possible errors due to illegible writing and reducing the time taken to fill the prescription.
- At Mrs. Smith's routine visit, Dr. Prada's electronic medical record would remind him to check her for any more lumps in her breasts.
- Health-system managers could measure referral times, looking for places that need improvement; faster referrals mean shorter wait times.
- Health-system planners could analyze use of mammography and biopsy services and could plan for supply of these services in different areas.

It all adds up to better care, improved access, less duplication of services, a more efficient system and citizens who are better able to manage their own concerns. At the same time, we would have better data for health research and could do better planning and management for health care.

88 Moving toward a better health data system in Ontario , ICES, March 2006

Appendix: Health System Performance Indicators

Section 3 of the report talked about how we could measure the quality of Ontario's health system performance. It listed a number of indicators that can be measured now. This appendix gives more detailed information on them — how they are measured and what they tell us.

Appendix 1 – Safe

People should not be harmed by the care that is intended to help them.

In their landmark study of adverse events in Canadian hospitals[89], Baker and Norton estimated that 7.5 percent of people admitted to hospital in Canada have an adverse event.[90] Applying their results to Ontario, where there are about 1.15 million annual hospital admissions, it is estimated that there are 85,000 adverse events, 32,000 of which are potentially preventable.

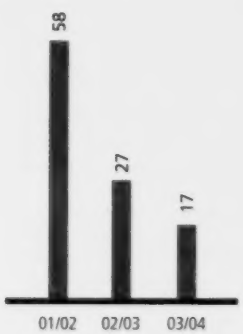
Unfortunately, we can't accurately identify and count these adverse events, mainly because the information systems in our health-care facilities don't allow us to consistently track them. This makes it difficult to determine what steps must be taken to reduce or eliminate adverse events.

The Ontario Health Quality Council has identified two patient safety indicators, both related to hospital care:

- Number of patients with fractures following admission to hospital
- Percentage of chronic hospital patients with new skin ulcers

The fracture indicator measures the number of selected medical and surgical patient groups that had post-admission fractures of the upper limb, lower limb and skull, most often resulting from falls. Fractures are the leading cause of morbidity in seniors[91]. Many, but not all, falls can be prevented.

NUMBER OF PATIENTS WITH FRACTURES FOLLOWING ADMISSION TO ACUTE-CARE HOSPITAL
(#)



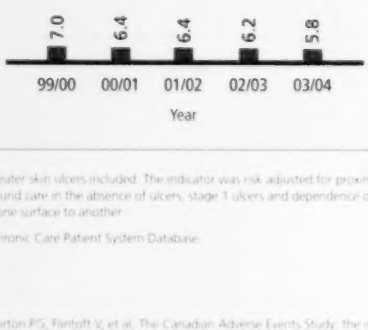
Based on records for patients discharged during the fiscal year.

Source: Canadian Institute for Health Information, Discharge Abstract Database

For the three years for which data is available, the number of in-hospital fractures in Ontario hospitals has decreased. We can measure in-hospital fractures because data for every acute-care hospital patient is reported to the Canadian Institute for Health Information, and the data includes information about complications that happen after the patient was admitted. But falls and fractures are an important safety concern for the more than 70,000 residents of long-term care beds in Ontario, and we can't measure how often they fall and have fractures.

The skin ulcer indicator measures the percentage of chronic hospital inpatients who did not have a stage 2 or greater skin ulcer at the time of initial assessment, but who developed one over the following 90-day period. Skin ulcers are caused by prolonged pressure on the skin due to a lack of mobility[92]. Individuals at risk of ulcers include those who are bed-fast or chair-fast, and impaired in their ability to change position. Almost all skin ulcers can be prevented if patients are repositioned and provided with good skin care.

CHRONIC-CARE HOSPITAL PATIENTS WITH NEW SKIN ULCERS
(%)



New stage 2 or greater skin ulcers included. The indicator was risk adjusted for proximity of death, surgical wound care in the absence of ulcers, stage 1 ulcers and dependence on others for transferring from one surface to another.

Source: Ontario Chronic Care Patient System Database

89 Baker GR, Norton PG, Flintoft V, et al. The Canadian Adverse Events Study: the incidence of adverse events among hospital patients in Canada. CMAJ 2004;170:1678-1686.

90 "An unintended injury or complication that results in disability at the time of discharge, death or prolonged hospital stay and that is caused by health care management rather than by the patient's underlying disease process."

91 Hospital Report Research Collaborative, 2003.

92 Ferguson-Pare M, Bourret E, Berrick L, et al. Best practices in the care of elderly persons in hospital. Hosp Q 2000;3:30-37.

There has been a small but steady decrease in the percentage of patients in chronic care hospitals[93] with new skin ulcers during the reporting period (1999/2000 to 2003/2004).

Clearly, the target for patient safety is that there should be no avoidable adverse events in the Ontario health-care system. The trend toward reduction in adverse events for the fracture indicator is a positive sign, and reflects the increasing attention being paid to patient safety in hospitals. This focus on patient safety should continue and expand to more aspects of in-hospital safety (for example, hospital-acquired infections and medication errors) and should include all health services. With the available measures, the quality council can't yet determine whether this focus has resulted in a safer health-care system in Ontario. A broader set of patient-safety measures (beyond those related to hospital care) will be required if we want to be able to ensure we can offer a safe health-care environment for patients and workers in Ontario.

Appendix 2 – Effective

The best science and evidence should be used to make sure the care we give is the best, most appropriate possible. Innovations should also be based on best evidence, whether they are new ways of co-ordinating care, preventing disease, delivering service or using technology.

Much health-care research focuses on assessing different ways to provide care (e.g., new drugs, new technologies, minimally invasive surgical techniques, home care versus inpatient care). The results of this research can provide good evidence of what course of treatment is most appropriate. An effective health-care system will generate, disseminate, and promote this evidence to help providers make the best possible treatment decisions.

To assess the success of the Ontario health system in this area, the quality council needs to be able to identify what is desirable practice, based on the evidence, then be able to monitor health-system performance to see whether this most-effective care is being provided. Ideally, there would be data available to the council that would support measurement of whether evidence-based treatment protocols have been followed, and data to confirm that following these protocols (or clinical practice guidelines) has resulted in the expected improvements in health care. There are pockets of such measures available in Ontario, but because they are based on administrative data, they are very limited.

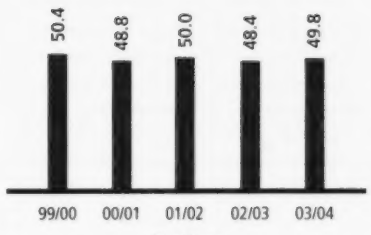
The Ontario Health Quality Council has identified three indicators for effectiveness:

- Percentage of newly diagnosed diabetes patients with an eye exam within a year of diagnosis
- 30-day survival rate after heart attack
- Five-year survival rates for cancer

Clinical practice guidelines recommend that 100 percent of newly diagnosed type 2 diabetes patients undergo a specialist eye examination at the time of diagnosis and 100 percent of patients with type 1 diabetes have a specialist eye examination within five years of diagnosis.[94] Following these guidelines helps to prevent blindness, a long-term complication of diabetes. The results below show that only 50 percent of new diabetics have an eye examination within one year of diagnosis. As the clinical practice guidelines become more widely implemented and clinicians change their practices and adhere to guidelines, we hope to see an increase in this rate.

NEWLY DIAGNOSED DIABETES PATIENTS, AGE 30+, WITH EYE EXAM WITHIN ONE YEAR

(%)



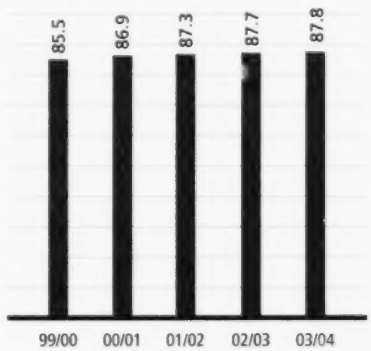
Percentage rate standardized by age and sex. Does not include patients receiving primary care in a non-fee-for-service setting.

Source: CIHI Discharge Abstract Database; MOHLTC OHIP Physician Claims

Acute myocardial infarction (heart attack) is one of the leading causes of death in Canada. The measurement of how many patients survive 30 days after being admitted to hospital for heart attack serves as an indicator of the quality of care being provided and the impact of disease prevention, treatment and management activities.

30-DAY SURVIVAL FOR ACUTE MYOCARDIAAL INFARCTION (AMI)

(per 100 population)



Age and sex standardized. Restricted to population aged 20 years and older.

Source: CIHI Discharge Abstract Database

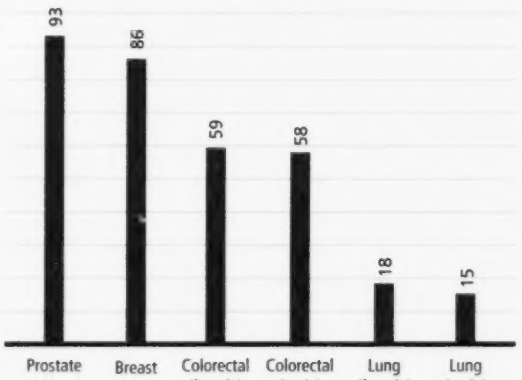
93 Also known as "complex continuing care"

94 Canadian Diabetes Association Clinical Practice Guidelines Expert Committee, 2003

This indicator looks at the health-care system's effectiveness in reducing deaths from heart attack. Higher rates are desirable because they indicate more people are surviving heart attacks, that high-quality care is being provided and that effective strategies for preventing, treating and managing heart attacks are being used. The data is not adjusted for the severity and type of cases; we do not have good benchmarks; and we cannot report on the use of effective therapies known to reduce death from heart attacks. Over the five-year period from 1999/2000 to 2003/2004, more than 85 percent of heart-attack patients survived for at least 30 days, and the rate showed modest but steady increases, some evidence that the health system is getting more effective at treating them. In its 2005 annual Health Indicators publication, CIHI reported that the Ontario risk-adjusted in-hospital death rate from heart attack was the second lowest of all provincial rates.[95]

The five-year relative survival rate for cancer describes the likelihood that a person diagnosed with cancer will survive for five years following diagnosis, compared to members of the general population of the same age and sex, but who have not been diagnosed with cancer. The five-year relative survival rate depends on the stage of diagnosis, type of cancer, characteristics of the tumour and availability of effective therapy. A rate of less than 100 percent shows that the disease did impact the survival of the patient over that five-year period as compared to the associated population without cancer. For example, the 86 percent five-year relative survival rate for breast cancer indicates that women with breast cancer are 86 percent as likely to have survived five years following diagnosis as their counterparts in the population without breast cancer. A higher relative survival rate is desired.

FIVE-YEAR RELATIVE CANCER SURVIVAL IN ONTARIO
(%)



Rates shown for four most common cancers. Based on all cases diagnosed in Ontario, 1995-97 at ages 50 to 79 years old, except for breast, which is based on cases diagnosed at ages 40 to 79 years old.

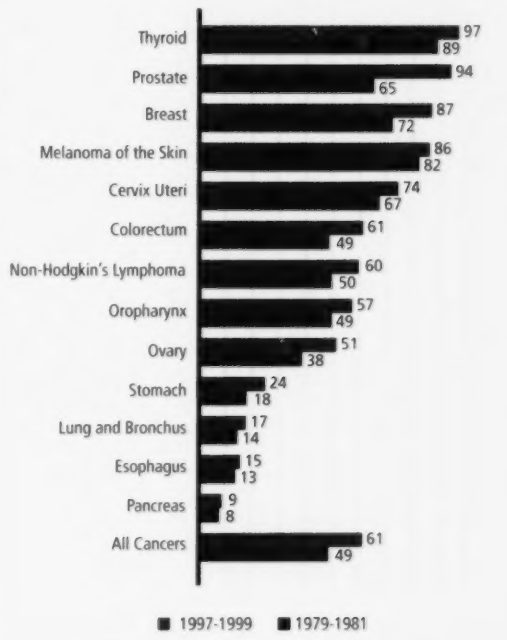
Source: Cancer Care Ontario, Ontario Cancer Registry

Measuring how long people with different types of cancer are expected to live helps us to understand:

- Differences in prognosis between one kind of cancer and another
- How effective cancer treatments are and whether they are improving

The effectiveness of the Ontario health system in preventing premature death due to cancer varies by type of cancer. Survival rates for breast cancer are relatively high, because screening for breast cancer can detect tumours at an earlier stage, which results in earlier and more effective treatment. The percentage of Ontario women screened is increasing, but it is short of the national target. Lung cancer survival rates remain low because it is less likely to be diagnosed while still treatable and therapy is not as effective. The key to reducing lung cancer is to reduce smoking rates, as discussed in Appendix 9. Survival rates for breast cancer in Ontario are similar to the Canadian average.[96] Cancer survival rates are generally higher in Canada than in Western Europe[97] and similar to rates in the U.S.[98] In Ontario, survival rates for cancer have improved for every type of cancer. For cancer care, there is good evidence the effectiveness of the health-care system is improving.

CHANGE IN FIVE-YEAR RELATIVE SURVIVAL RATES
(%)



Both sexes and all ages combined.

Source: Ontario Cancer Registry Incidence File, Cancer Care Ontario

In the past decade, all sectors of the Ontario health system have increasingly sought to adhere to evidence-based approaches to care. The number of clinical practice guidelines for cancer available electronically has more than doubled in Ontario over the past four years.[99] Over 90 percent of certain groups of patients with colon

95 "Health Indicators," CIHI Catalogue no. 82-221-XIE, Volume 2005, No. 3.
96 Canadian Cancer Society/National Cancer Institute of Canada. Canadian Cancer Statistics 2005, Appendix I.
97 Rosato P, Capocaccia M, Santaquilani M, et al. Electronic availability of EUROCARE-3 data: a tool for further analysis. Annals of Oncology 2003; 14 (Suppl 5):v150:v155.
98 Based on a comparison to the SEER Cancer Statistics Review, 1975-2001. http://www.cancer.gov/csr/1975_2001/results_merged/topic_survival.pdf
99 Ontario's Program in Evidence-Based Care. Found at: http://www.cancercare.on.ca/index_aboutthePEBC.htm

cancer, lung cancer and breast cancer treated by Ontario's cancer-care system received recommended care, which demonstrates this part of the health system is effective (however, we cannot measure results for patients treated for cancer in other parts of the health system). There are many other opportunities for quality-improvement activities and system changes to support implementation of best practices. Greater dissemination of good evidence will help health-care providers in Ontario continue to improve their performance and the health status of the population.

Appendix 3 – Patient-Centred

Patient-centred care respects the individuality, ethnicity, dignity, privacy and information needs of each patient and the patient's family. That respect should pervade the health system. Patients should be in control of their own care. Accountability to patients and their families should be high.

In recent years, health-care providers around the world have been shifting toward "patient-centred care."[100] They have realized that many aspects of the health-care system were historically structured for the benefit and convenience of the health-care providers, not necessarily for the benefit of the patients. This has an impact not only on the satisfaction of patients with the care they receive, but also on the likelihood that patients will seek care and will follow self-care instructions. Whether an interaction with a health-care provider can be considered to be "patient-centred" must be evaluated by the patient, not by the provider.

The best measures of whether the Ontario health system is providing patient-centred care would be to measure, for each provider in each sector in the health system, patient satisfaction with the elements of care that make it patient-centred (such as co-ordination of care, doctor's communications, shared decision making and respect). Global patient satisfaction related to acute-care hospitals in Ontario is routinely collected and reported through the *Hospital Report*, jointly supported by the Ontario Hospital Association, the Ministry of Health and the Canadian Institute for Health Information. However, a recent change in the patient satisfaction survey instrument used for the Hospital Report means that the results for 2005 can't be compared with results for prior years.

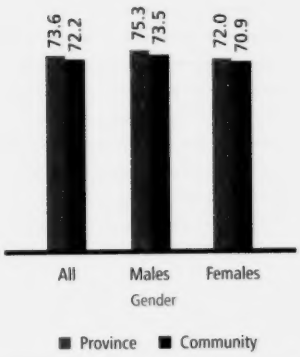
Similar patient satisfaction data is not available for all sectors in the Ontario health system, and even where it is available, it is seldom reported at the level of the individual provider.

The quality council has selected two indicators to assess patient satisfaction with health services and ability of patient to receive their choice of health-care provider:

- Percent of population rating health-services quality as good or excellent
- Percent of long-term care candidates placed in their first choice of home

The Canadian Community Health Survey asked individuals to rate the quality of services in the province and in the community as either good or excellent.

SATISFACTION WITH HEALTH-CARE SYSTEM IN PROVINCE AND IN COMMUNITY
(% rating quality as good or excellent)



Restricted to population aged 15 years and older.

Source: Canadian Community Health Survey, Cycle 2.1.

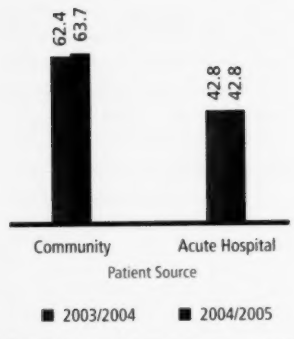
Nearly three-quarters of Ontarians surveyed indicated the quality of health services in the province and in their community was good or excellent — which means that a little over one-quarter of Ontarians find their care to be fair or poor. The survey is a broad measure of individual perceptions of the health system, and it does not specify what parts of the system individuals have encountered (e.g., nurses, physicians, community services, etc.).

Individuals in Ontario who need long-term care that can't be provided in their home have the right to choose the long-term care facility in which they will live. As part of the application, patients are asked to rank their first, second and third choice of long-term care homes. They are then placed on a wait list for each of these homes. If a patient turns down a bed offer, they are removed from all wait lists and cannot reapply for another six months, unless their health status deteriorates. Patients who accept a bed offer other than their first choice can remain on the wait lists of their first and, if desired, other choices of homes. Patients in acute-care hospital beds who refuse to accept an offer of a long-term care bed must then pay hospital accommodation charges.

The chart below shows that about 60 percent of patients who live in the community and apply for a bed in long-term care get their first choice. Only about 40 percent of patients who apply from an acute-care hospital bed receive their first choice.

100. Stewart M. Towards a global definition of patient centred care. BMJ 2001;322:444-445.

PLACEMENTS TO LONG-TERM CARE HOMES FROM COMMUNITY AND HOSPITAL LOCATIONS
(% placed in first choice)



Does not include crisis placements, transfers or clients placed from non-acute care institutions (ie. rehabilitation, psychiatric, chronic care, out-of-province).

Source: Long-Term Care Planning and Renewal Client Profile Database

The fact that the majority of people applying for beds in long-term care from acute care don't get placed in the home of their choice reflects the focus of the hospital system on moving patients who no longer require acute care out of the hospital, even if it means ignoring patient preference. This shows the challenges that providers face in balancing the push for hospital efficiency with respect for patient wishes. With innovation and creativity, we can achieve both these goals.

Almost three-quarters of Ontarians surveyed in 2003 reported they would rate the quality of the Ontario health system as good or excellent —a positive result, but it doesn't tell us which sectors are doing better than others in providing patient-centred care, or whether there are differences across individual providers. The low percentage of applicants to long-term care from acute-care hospitals who get to move to the home of their choice is a concern. We do not know if placement in long-term care is the choice of these patients or if it's their only option because services are not available to allow people to age at home. As demands on the health system increase, due to population growth and aging, providers may feel pressure to diminish their efforts to provide patient-centred care. Expanding the capacity to measure patient satisfaction with individual health-care sectors and providers and assessing some specific elements of care that show whether it's patient-centred — such as doctor-patient communication — should be a priority in Ontario.

Appendix 4 – Accessible

Patients in need should get appropriate care in the most appropriate setting. We should keep trying to reduce waits and delays.

Improving access to health-care services has been a focus of the Ontario Ministry of Health and Long-Term Care. Section 4 of this report provides many examples of opportunities to improve access to health care, and examples of methods that can be used to do so.

The Ontario Health Quality Council has identified two indicators that are representative measures of access to health services by Ontario residents:

- Wait times for joint replacement
- Percentage of population with a regular doctor

Wait times are one of many dimensions of accessibility and often can be shortened through better management techniques and improving appropriateness of providing procedures to those who will benefit. In late 2004, the Minister of Health and Long-Term Care announced Ontario's Wait Time Strategy. The strategy is designed to improve access to health-care services by reducing the time that adult Ontarians wait for services in five areas by December 2006, while not extending the waits for other services. Hip and knee total joint replacements are services that have been targeted for creation of a patient-centred surgical-care system that monitors and manages wait times, improves how efficiently and effectively care is delivered, and makes wait time information available to the public and providers.

One of the first Wait Time Strategy challenges for the Ministry of Health and Long-Term Care has been the absence of a comprehensive provincial wait list to measure patient waits, and the lack of a process to prioritize patients based on clinical need and reasonable waiting-time standards for different procedures. The ministry is implementing a provincial "Wait Time Information System" that health-care providers, hospital boards and administrators, and the ministry will be able to use with patient priorities and targets to manage access and track whether Ontarians with similar clinical needs are being treated within accepted time frames, regardless of their surgeon, hospital or geographic location.

Prior to the availability of the wait-time information system, the ministry used retrospective data compiled by the Institute for Clinical Evaluative Sciences (ICES) to examine wait times. These wait times are based only on retrospective data for patients who have had their surgery, not patients who remain on the waiting list. The following graph shows the estimated change in median wait times for joint replacements in Ontario from 1999/2000 to 2003/2004. The median wait time is the time where half of the patients waited for a shorter time, and half waited for a longer time.

Wait time is defined as time between the last surgical consultation and the surgery being provided. Restricted to patients 20 years and older.

Source: CIHI Discharge Abstract Database, CIHI NACRS Database, MOHLTC OHIP Physician Claims and Registered Persons Database.

Median waits for joint replacements have been increasing, even though the number of joint replacements actually performed in Ontario hospitals has also risen considerably.

While the median wait time provides useful information, it doesn't help us understand whether there are some patients who are waiting a much longer time. For example, if the median wait for a procedure is 10 weeks, it could be that all of the patients with a longer wait had to wait 11 weeks, or it could be that they had to wait 100 weeks. The median wait by itself doesn't tell us about the distribution of the wait times. Supplementing the median wait time with a second measure, such as the 90th percentile wait (the time where 90 percent of patients waited a shorter time, and 10 percent of the patients waited a longer time) provides more-complete information.

As better wait-time data become available and policy targets for acceptable wait times are refined, the council will be watching for evidence that the Wait Time Strategy has achieved its goals.

Improving access to primary care has also been a national and provincial health-care priority. In Ontario, Family Health Teams have been introduced to provide patients with access to a collaborative team of doctors, nurses, nurse practitioners and other health-care professionals, as close to home as possible.

The Canadian Community Health Survey asks people whether they have a regular medical doctor. The results for Ontario show that in 2000, 9 percent of people reported not having a regular doctor; this rate decreased slightly to 8 percent in 2003.[101] This indicates that close to 1 million Ontarians do not have a family doctor. This varies by geography and by population subgroup. It does not tell us about how much continuity there is in the primary care that patients get. It also means that these patients are probably not being immunized if they are children, screened for cancer if they are adults or otherwise not receiving the primary care that may prevent chronic or acute diseases. The Ontario Primary Care Access Survey (currently in development) will help to measure the availability and accessibility of primary-care services and gauge public perception regarding those services and the establishment of Family Health Teams. This survey will help determine the number of Ontarians who need care but cannot access it.

The available measurements of access suggest the Ontario health system has not yet achieved high performance for this important attribute. While recent investments in reducing wait times for selected surgical procedures may bring about improvements, there isn't evidence yet that this has happened. Measures of access to other health services need to be developed and refined so the quality council can monitor variation in access across services and between communities.

Appendix 5 – Efficient

There should be continuing efforts to reduce waste, including waste of supplies, equipment, time, ideas, intellectual property and health information.

An efficient health system will deliver valuable health-care resources according to patient need. It will also reduce the amount of care that is provided to patients who could be well treated in a less intensive (and less expensive) care setting. Efficiency indicators are usually presented as measures of inputs or cost per unit of output. A challenge for measuring health-care outputs is ensuring they are adjusted to reflect differences in patient characteristics, such as age, gender or burden of illness.

The quality council has identified one overall indicator of health-system efficiency and two indicators of hospital efficiency:

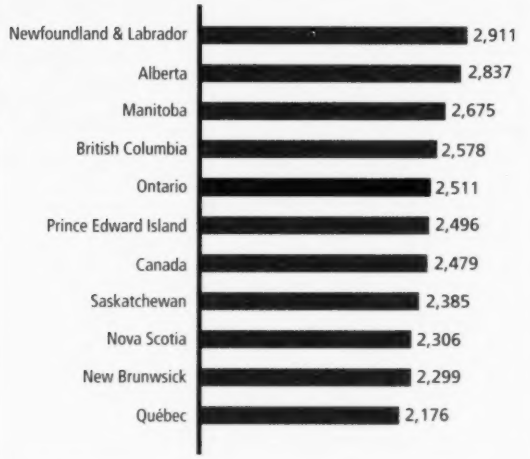
- Provincial government health expenditures per capita
- Percentage of alternate level of care days in Ontario hospitals
- Hospitalization rate for ambulatory-care-sensitive conditions

The Canadian Institute for Health Information collects data on government and private health-care expenditures in Canada.[102] One measure of health-system productivity or efficiency reported by CIHI is the total provincial health expenditure per capita for each Canadian province. This measure is standardized to take into account the differences in the age of the population in each province. The following graph shows the results for 2003.

101 Canadian Community Health Survey, Cycle 1.1, 2.1.

102 "National Health Expenditure Trends, 1975-2005," Canadian Institute for Health Information, 2005.

PROVINCIAL GOVERNMENT HEALTH EXPENDITURES
($ per capita, 2003)



Age and sex standardized

Source: Canadian Institute for Health Information, Statistics Canada, National Health Expenditures Database

In 2003, Ontario health expenditures were $2,511 per capita, above the Canadian average of $2,479. At first glance, this would suggest Ontario's health system was less efficient than the Canadian average, since it spent more per capita to provide health care.

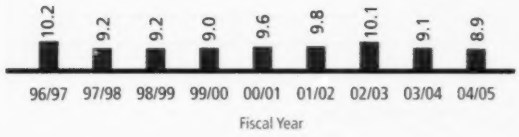
However, we can't necessarily draw that conclusion, since we don't know whether the set of health services funded in Ontario is exactly the same as the health services funded by the provincial governments in other provinces. Ontario has a well-developed home-care system that isn't duplicated in all other provinces. There are also differences in pharmacare programs across the country. It becomes very difficult to assess the overall health-care system efficiency because of these differences, and even comparisons of specific types of providers can be confounded by differences in the roles of the providers in different provinces.

While overall comparisons of relative health-system efficiency are difficult to make, we can look at specific measures of opportunities to improve efficiency.

Ontario hospitals have shorter acute-care lengths of stay, make greater use of day surgery,[103] and have lower costs per case than hospitals in most other provinces.[104] "Alternate level of care" (ALC) days are inpatient days in acute-care hospitals for patients who have been determined by their physician to no longer require acute care. They are patients who could be well treated outside an acute-care hospital, and in most cases would receive care better suited to their needs (such as rehabilitation programming or long-term care) in another setting. When acute-care beds are used for alternate care, hospital occupancy increases, and medical patients may have to wait in emergency-department hallways, waiting for access to an empty bed.

The following graph shows that approximately 9 percent of Ontario acute-care hospital inpatient days (and beds) are used for alternative-level-of-care patients. This is equivalent to 1,700 acute-care beds used for patients waiting to be discharged, that aren't available for patients who need acute care. Even though 20,000 long-term care beds have been added in Ontario over the last five years, and most alternative-level patients are waiting for access to long-term care, there has been little reduction in the number of days acute beds are used for alternative levels of care.

ALTERNATIVE LEVEL OF CARE (ALC) DAYS IN ONTARIO ACUTE CARE HOSPITALS
(% days)



Denominator does not include patient days for newborns.

Source: CIHI Discharge Abstract Database

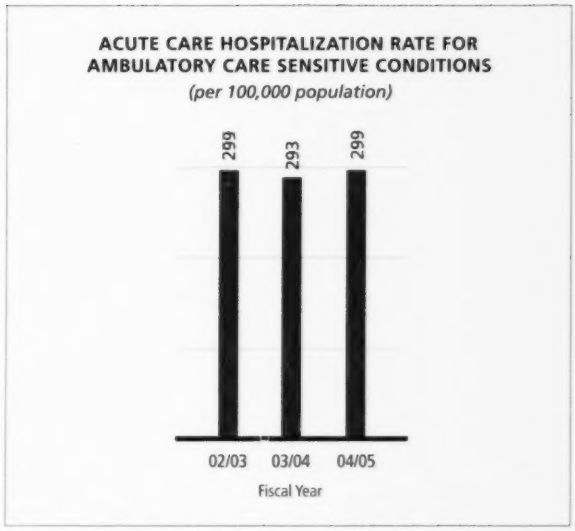
While hospitals report alternative-level-of-care days, there is no routine reporting of what service the patients are waiting for, which makes it difficult to determine how additional investments in post-acute health services should be targeted.

Researchers have developed a list of patient conditions they refer to as "ambulatory-care-sensitive conditions,"[105] since with access to good community and ambulatory care, patients may be able to avoid inpatient admission to hospital. A low rate of hospital admissions for ambulatory-care-sensitive conditions may indicate that patients are able to access primary and community care in a timely manner and acute-care hospital resources are being focused on inpatients whose admission could not have been easily avoided.

103 "Clinical Efficiency - Comparison of Hospitals in Ontario with Hospitals in Other Provinces," Ontario Hospital Association, March 2004.

104 "Summary of Hospitals' Clinical and Operational Efficiency Reports," Ontario Hospital Association, March 2004.

105 Brown AD, Goldacre MJ, Hicks N, et al. Hospitalization for ambulatory care-sensitive conditions: a method for comparative access and quality studies using routinely collected statistics. Can J Public Health 2001;92:155-159.



Age standardized. Excludes population aged 75 and older. Conditions are asthma, chronic obstructive pulmonary disease, grand mal status and other epileptic convulsions, acute bronchitis, pneumonia, and congestive heart failure.

Source: CIHI Discharge Abstract Database

While the data above suggest there has been little recent variation in the ambulatory-care-sensitive condition rate, recent changes in hospital coding and data-collection systems make it impossible for the quality council to comment conclusively on the long-term trend. In future reports, we will examine the variation in this indicator (and others) by region and by specific condition, such as heart failure, asthma or diabetes, since prior studies have shown wide ranges in performance.

As mentioned, although it is difficult to measure it directly, the burden on the Ontario health system of data collection, transmission, and reporting is greatly increased because of the under-use of integrated information and communications technology in health care. This under-use of technology, exemplified by the lack of electronic health records, means that dollars that could be used to improve care are instead used to pay for individual computer systems that don't talk to each other and require duplication of data collection. They also go to pay staff to collect and code administrative data, rather than having the data generated as an automatic by-product of providing care. This is a clear example of inefficiency in the Ontario health system.

The available information does not allow the quality council to determine whether the Ontario health system is efficient, compared to the health systems in other jurisdictions. However, these measures of opportunities to improve health-system efficiency show the Ontario health system is not as efficient as it might be.

Appendix 6 – Equitable

There should be continuing efforts to reduce disparities in the health of those groups who may be disadvantaged by social or economic status, age, gender, ethnicity, geography or language.

Health service researchers have often found that even in the Canadian health system, where universality is a key principle of medicare, there are differences in use of health services and health status related to factors such as socio-economic status or ethnicity.[106,107,108] While these differences are not as great as is usually found in the U.S. health-care system, they do show that there are influences on access to health care and health status that go beyond the ability to pay for health services.

Geographic variations in rates of use of health-care services in Ontario have been demonstrated in the health-care atlases produced by the Institute for Clinical Evaluative Sciences.[109,110] Because the administrative data used to generate most health-care performance indicators don't include information about a patient's income, education, or ethnic background, but do usually include the patient's postal code, most measures of health-system equity focus on geographic variation. However, postal codes can also be used to identify residents of low-income neighbourhoods, which lets us assess variations by neighbourhood income.

The quality council has identified two indicators that demonstrate measurement of variation in health status and health-care service supply by geographic region:

- In-hospital death following stroke by health region
- Primary care physicians per 10,000 population by region

The first indicator is the risk-adjusted rate of death in hospital within 30 days after admission following a stroke. Rates were calculated separately for the residents of each of the geographic regions for which the new Local Health Integration Networks (LHINs) will be responsible. In 1996, the Institute for Clinical Evaluative Sciences estimated that 14,937 Ontario hospital discharges were patients who suffered hemorrhagic and ischemic strokes.[111] A study found that the direct and indirect cost of stroke care in Ontario was between $718 million and $964 million a year.[112]

The Ontario Ministry of Health and Long-Term Care has introduced the Ontario Stroke Strategy. Its goals are "to decrease the incidence of stroke and improve the patient care and outcomes for persons who experience stroke by re-organizing stroke care delivery to ensure that all Ontarians have access to appropriate, quality stroke care in a timely manner."[113] Since 2000, Ontario has established and funded nine regional stroke centres, 18 district stroke centres, and 24 stroke-prevention clinics. This co-ordinated provincial approach to improving stroke care is expected to reduce inequities in access to stroke care.[114]

106 Dunlop S, Coyte PC, McIsaac W. Socio-economic status and the utilisation of physicians' services: results from the Canadian National Population Health Survey. Soc Sci Med 2000;51:123-133.

107 Young TK, Reading J, Elias B, et al. Type 2 diabetes mellitus in Canada's First Nations: status of an epidemic in progress. CMAJ 2000;163:561-566.

108 Newbold KB, Danforth J. Health status and Canada's immigrant population. Soc Sci Med 2003;57:1981-1995.

109 Goel V, Williams J, Anderson G, et al. Patterns of health care in Ontario, 2nd edition. Institute for Clinical Evaluative Sciences, May 1996.

110 Hux J, Booth G, Slaughter P, et al. Diabetes in Ontario." Institute for Clinical Evaluative Sciences, June 2003.

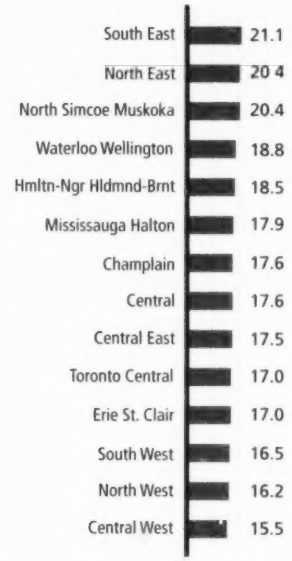
111 ICES Practice Atlas, "Patterns of Health Care in Ontario," 1996.

112 Chan B. Cost of stroke in Ontario, 1994/95. CMAJ 1998;159(6 suppl):52-58.

113 "Ontario Stroke Strategy," Ontario Ministry of Health and Long-Term Care, June, 2004.

114 Black D, Lewis M, Monaghan B, et al. System change in healthcare: the Ontario Stroke Strategy. Hosp Q 2003;6:44-47.

IN-HOSPITAL MORTALITY WITHIN 30 DAYS OF STROKE
(%)



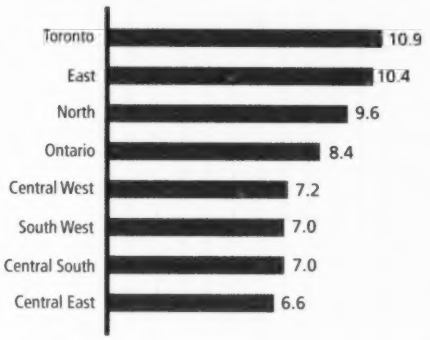
Risk adjusted by age, sex, type of stroke, and comorbid conditions. Restricted to patients 20 years and older.

Source: Canadian Institute for Health Information, Hospital Morbidity Database

The in-hospital mortality rate for stroke patients who live in the South East Local Health Integration Network (Hastings County, Lennox & Addington, Prince Edward County, Frontenac County, and the City of Kingston) is 36 percent higher than the mortality rate for patients who live in the Central West LHIN (Dufferin County, the northern portion of Peel Region, part of York Region, and a small part of the City of Toronto).

The second indicator is the number of active primary-care physicians per 10,000 population by Ministry of Health planning region. The Ontario Physician Human Resources Data Centre maintains a registry of active physicians in Ontario by specialty and practice location, and generates reports comparing physician supply with population. Family physicians and non-specialist physicians are the backbone of the primary-health care system in Ontario, and all residents should have equal access to them.

FAMILY PHYSICIAN AND NON-SPECIALIST PHYSICIANS
(per 10,000 population)



Based on active physicians recorded in OPHRDC database as general practitioner, family medicine, family practice/anaesthetists, or family practice/emergency medicine.

Source: Ontario Physicians Human Resource Data Centre

The highest ratios of family and non-specialist physicians per population are found in the Toronto and East (Ottawa-Kingston) planning regions. The lowest ratios are found in the Southwest (Windsor, London) and Central East (York, Durham, Peterborough) regions. Toronto has 56 percent more family and non-specialist physicians per population than the Southwest and Central East regions. Ministry of Health primary-care reform initiatives must address inequities in distribution of health-care human resources as well as potential shortfalls in the overall provincial supply.

It appears that the Ontario health system cannot yet promise equity in access to health services or equity of health status to all Ontarians. The council urges the Ministry of Health and Long-Term Care to ensure clear provincial health-care system objectives are established, and that the Local Health Integration Networks work to ensure that patients in all regions can expect their health care will meet or exceed the provincial standards.

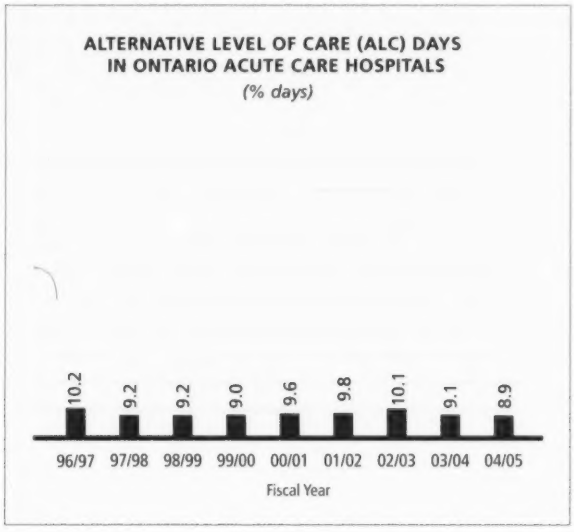
Appendix 7 – Integrated

The health system should set clear quality objectives for all health-service providers. The objectives should be aligned at the provincial, regional and local levels and each service-delivery organization should have to track them for accountability.

Enhancing integration within the health-care system is a primary goal of the Ontario Ministry of Health and Long-Term Care health-care transformation agenda. Most health-care providers funded by the ministry will be required to complete service accountability agreements that will articulate service and quality objectives in response to the ministry's goals for the health system in Ontario.

While these service accountability agreements are now being negotiated by the ministry, over time it is expected that responsibility to complete these agreements with service providers will be transferred to the Local Health Integration Networks. A future measure of success in integrating quality improvement in the plans and processes of health-care providers could be the number of successfully concluded accountability agreements.

Another aspect of health-system integration is the relationship between providers in different sectors, and the extent to which barriers for patient movement along a continuum of care are minimized or removed and care is co-ordinated. An example of a performance indicator that addresses integration between acute-care hospitals and long-term care facilities is the alternate-level-of-care days indicator, previously presented as an efficiency indicator (see Appendix 5), and shown again below.



Denominator does not include patient days for newborns.

Source: CIHI Discharge Abstract Database

In a health-care system where acute care and long-term care are well integrated, there would be little delay in moving acute-care patients who no longer need acute care to a more appropriate care environment. Also, some admissions that result in alternative-level-of-care days could be averted with better primary care and community-based care. Instead, almost 10 percent of valuable acute-care beds are used for patients waiting to be discharged or transferred, and acutely ill patients may be forced to wait in the emergency department because no bed is available.

The council has found that there is little evidence Ontario's health-care system is integrated. We hope the introduction of the Local Health Integration Networks and their explicit responsibility to promote health-system integration will lead to improved integration.

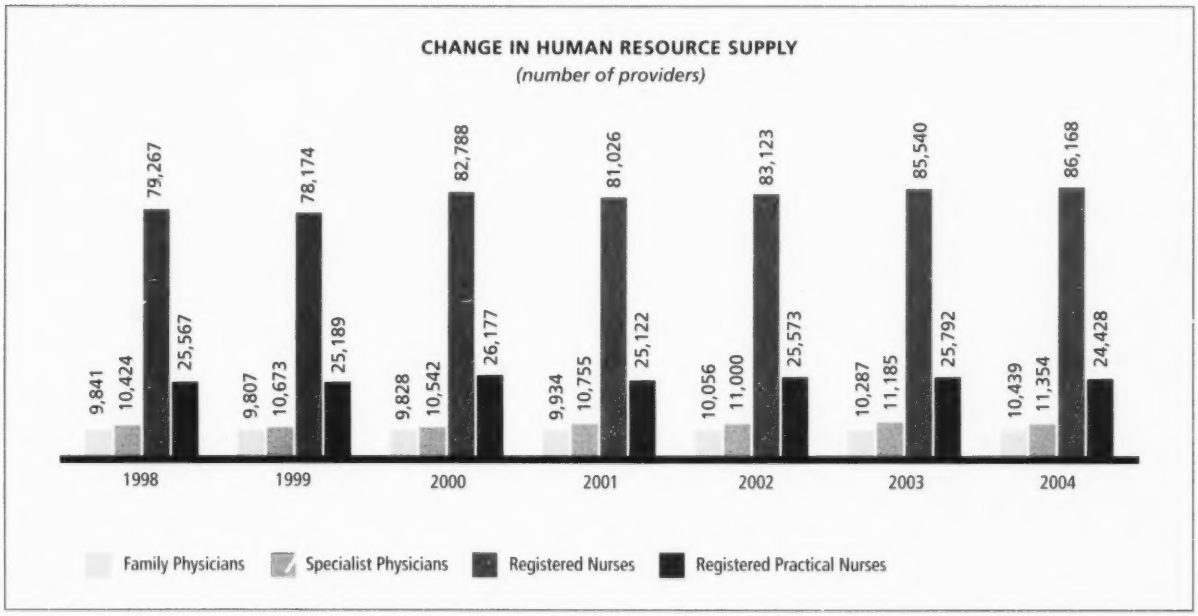
Appendix 8 – Appropriately Resourced

The health system should plan for appropriately trained human resources, provide a safe and satisfying environment for their work and provide sufficient facilities, instruments and technology to support productive and effective patient care.

Appropriate resourcing includes both the providers of care and the facilities, machines, drugs, money and other resources they need to do their jobs. One measure of whether there is an appropriate supply of human resources in the Ontario health system is whether the supply has increased with increased needs for health services by a growing and aging population. A second measure, of the safety of the health-care work environment, is the days of work lost due to health-care worker injuries. Therefore, the indicators are:

- Change in human-resource supply
- Days of work lost by health-care workers

While ideally the first measure would be expressed as a per-population rate and adjusted to reflect the age of the population, the available data for physicians and nurses from the Ministry of Health does show that the increase in providers since 1998 has not matched the corresponding increase in the size of the Ontario population (11 percent).



Physician numbers provided by the Ontario Physicians Human Resource Data Centre.
Nursing numbers provided by the College of Nurses of Ontario.

Source: Ontario Ministry of Health Information Management Health Result Team

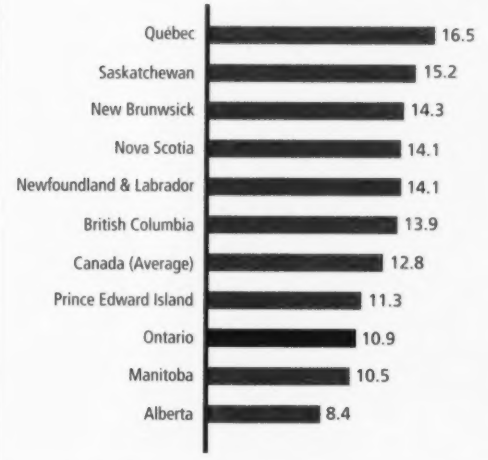
The Ontario government has committed to increasing education and training spaces for most health-related disciplines, and in future reports, the quality council will monitor whether this increase has resulted in more human resources in Ontario, and whether the health system offers the safe, productive and satisfying work life that is an attribute of a high-performing health system.

The Institute for Work and Health[115] reports that:

- Health-care workers are 1.5 times more likely to miss work because of illness and disability than workers in other sectors.
- Health-care workers are particularly vulnerable to musculoskeletal injuries from lifting and moving patients. They are at higher risk for back problems and other soft-tissue sprains and strains compared to workers in other sectors.
- Health-care workers are a high-risk group for accidental needle-stick injuries, infection, illness, stress and workplace abuse and violence.

In 2004, full-time workers in health occupations across Canada missed 12.8 days of work due to illness or disability, on average. Provincial rates varied from a low of 8.4 days in Alberta to a high of 16.5 days in Quebec.[116] Ontario had the third-lowest provincial rate of days lost.

DAYS LOST DUE TO INJURY/ILLNESS FOR HEALTH-CARE WORKERS, BY PROVINCE



Data from Statistics Canada Labour Force Survey.

Source: Canadian Institute for Health Information.

Over the last 10 years, there has been an overall sharp decline in compensation claims rates for work-related injuries in Ontario. However, the reduction in claim rates among health-care workers over this same period of time has been less marked and actually rose slightly in 2000.[117]

The council has examined the many recent reports that forecast the demand for health-care professionals and raise concern that current policies are not sufficient to ensure there will be a sufficient supply of qualified staff to meet the demand.[118,119] We agree there is a risk that as health-care demand increases, Ontario will not have the number and mix of health-care providers necessary to support a high-performing health system. The increased workload and potentially unsafe work environment may further contribute to this problem.

Appendix 9 – Focused on Population Health

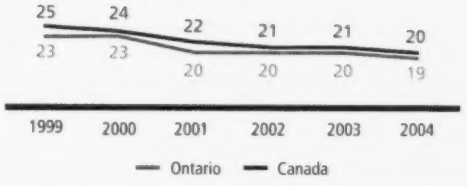
There should be a determined effort to continuously improve the overall health of the population of Ontario.

Improving population-health status reduces the overall burden of illness and thus the demand for services. It is a key to sustainability of the health system. Improving health status requires co-ordinated efforts between the parts of governments that are responsible for health care, health promotion and other determinants of health, such as housing, water, education, water quality and environment. The quality council has selected three indicators as examples of measures of the change in the health status of the population. They are:

- Use of tobacco by Ontario residents
- Infant mortality
- Additional years of life expectancy at age 65 for Ontario residents

Tobacco-related diseases cost the Ontario economy at least $1.7 billion in health care annually,[120] result in more than $2.6 billion in productivity losses,[121] and account for at least 500,000 hospital days each year.[122] While use of tobacco has been declining, this decline has been slow in spite of public-education efforts and greater restrictions on smoking. Almost one in five adults in Ontario still report regular use of tobacco products. The province's tobacco strategy should lead to less use of tobacco.

USE OF TOBACCO
(% use)



Restricted to population aged 15 and older.

Source: Health Canada, Canada Tobacco Use Monitoring Survey.

115 "Fact Sheet: The health of health-care workers," Institute for Work & Health, 2005.
116 "Canada's Health Care Providers: 2005 Chartbook," Canadian Institute for Health Information, 2005.
117 "Fact Sheet: The health of health-care workers," Institute for Work & Health, 2005.
118 "Environmental Scan: Prepared for The Provincial Health Human Resources Strategic Advisory Group," Ontario Hospital Association, October 2004.
119 "Health Personnel Trends in Canada, 1993-2002," Canadian Institute for Health Information, April 2004.
120 "Curbing the epidemic: Governments and the Economics of Tobacco Control," The World Bank, 1999.
121 "Investing in Tobacco Control: Good Health Policy, Good Fiscal Policy," Ontario Medical Association, 2003.
122 "The Economic Costs of Alcohol, Tobacco and Illicit Drug Use in Ontario: 1992," Addiction Research Foundation, 1996.

Infant mortality is a long-established measure, not only of child health, but also of the well-being of a society. The infant mortality rate reflects the level of mortality, health status and health care of a population, the effectiveness of preventive care and the attention paid to maternal and child health. It is defined as the number of infants who die in the first year of life, expressed as a rate per 1,000 live births.[123] In 2001 (the most recent year for which data is available), Ontario had the 4th highest infant mortality rate of the Canadian provinces.

INFANT MORTALITY, 2001
(per 1,000 live births)

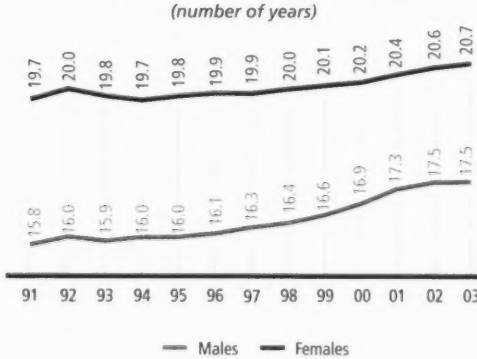
Based on 3 year average

Source: Statistics Canada, Vital Statistics, Birth and Death Databases

Among OECD countries, infant mortality is the lowest in Japan and in the Nordic countries (Iceland, Sweden, Finland and Norway), all below 3.5 deaths per 1,000 live births.[124] The Ontario infant mortality rate is more than 50 percent higher.

Another measure of the health status of the population is the life expectancy. The table below shows the expected additional years of life for a 65-year-old Ontario resident for each of the past 14 years.

ADDITIONAL YEARS OF LIFE EXPECTANCY AT AGE 65
(number of years)



Source: Statistics Canada, Canadian Vital Statistics, Birth and Death Databases

In 1991, an Ontario male aged 65 could have expected to live for an additional 15.8 years, to age 80.8. An Ontario female aged 65 years could have expected to live for an additional 19.7 years, to age 84.7.

In 2003 (the most recent year for which data is available), an Ontario male aged 65 could expect to live for an additional 17.5 years, to age 82.5. An Ontario female aged 65 could expect to live for an additional 20.7 years, to age 85.7. The life expectancy for males aged 65 has increased 1.7 years since 1991, and 1.0 years for females over the same time. 2002 was the first year since the early 1990s there was no increase in life expectancy for men compared with the prior year.

While the availability and quality of health-care services in Ontario have likely contributed to this increase in life expectancy, other non-medical determinants of health (such as nutrition, education, etc.) also play a role. Future quality council reports will focus on assessing the impact of specific health-system quality improvement initiatives intended to directly and measurably improve the health of the Ontario population.

Other health-status measures reviewed (reported in the Ontario Health System Scorecard)[125] include:

- Teenage pregnancies (between 1996 and 2002 the rate has steadily declined)
- Sexually transmitted diseases (rates are increasing in Ontario and in other jurisdictions in Canada)
- Potential years of life lost due to selected causes (for all causes early loss of life is higher for males than for females)
- Obesity rates (between 2000 and 2003, there was little change in the overall rate of obesity in the Ontario population, but while the rates for females declined in most age groups, the rates for males, and particularly teenage males, increased)
- Heavy drinking (between 2000 and 2003, the percentage of Ontarians that reported heavy drinking episodes increased for almost all age groups for both males and females)
- Seat belt use and helmets for children riding bikes (success in promoting use of both in recent years)
- Universal Influenza Immunization Program (positive indications that the populations at greatest risk of serious complications due to influenza, namely seniors, are being successfully targeted)

While tobacco use has decreased, there is other behaviour that can be expected to have a negative impact on the health status of the population of Ontario. Although the life expectancy of Ontarians has been increasing, there are opportunities to further improve health through health promotion and illness-prevention initiatives.
In June 2005, the Ontario government appointed a Minister of Health Promotion to bring greater focus to this area.

123 "Statistics Canada: Health Indicators," 82-221-XIE
124 "OECD Health Data 2005: Statistics and Indicators for 30 Countries," Organization for Economic Cooperation and Development, June, 2005.
125 "The Ontario Health System Scorecard," Ontario Ministry of Health and Long-Term Care, January, 2006

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Canadian Council on Health Services Accreditation, Cancer Care Ontario, Cardiac Care Network, Council of Academic Hospitals of Ontario, Information Technology Association of Canada, Institute for Clinical Evaluative Sciences, Ontario Health Research Alliance, Ontario Ministry of Health and Long-Term Care Health Results Team, R.B.J. Schlegel-University of Waterloo Research Institute for Aging, Saint Elizabeth Health Care, Smart Systems for Health Agency.

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Governance

The Ontario Health Quality Council is mandated under Ontario's Commitment to the Future of Medicare Act to inform Ontarians on the status of our publicly funded health system, including access to health services, health human resources, the health of Ontario's population, and health system outcomes. The Ontario Health Quality Council also supports continuous quality improvement in the health system.

In support of its work, the council has two committees:

- Communications Committee: recommends to council a communication strategy and plan to ensure the council's report is relevant and understandable, and receives the attention of as many Ontarians as possible.
- Operations and Audit Committee: reviews and makes recommendations to council regarding its finances, audit arrangements, human resource plans and policies, and information technology.

Administration

Angie Heydon	Chief Administrative Officer

About the Council

The Ontario Health Quality Council is an independent agency funded by the Government of Ontario through the Ministry of Health and Long Term Care. The quality council reports directly to Ontarians on access to publicly funded health services, health human resources in publicly funded health services, consumer and population health status, and health system outcomes.

Our role is to enhance accountability to Ontarians by independently and objectively reporting on the quality of the health system and to help Ontarians better understand its underlying factors. Our goal is to provide Ontarians, government and professional bodies with relevant evidence-based information to help them make better decisions about the health-care system.

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Visit our website **www.ohqc.ca** to download a copy of our First Yearly Report.

Feedback

We welcome your comments and will be visiting communities around the province to invite feedback. Visit our website at **www.ohqc.ca** to tell us what you think, and to see dates and locations for public meetings.

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